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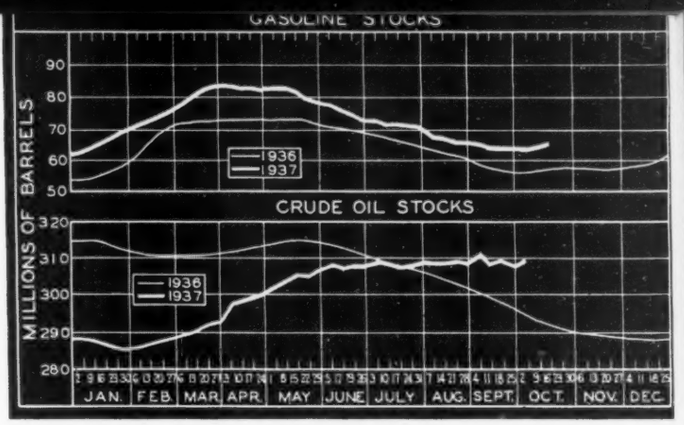


Price Level Becomes Important

PRICE developments of the past week pointed to the necessity of a greater curtailment in crude runs to stills at refineries. For the first time since late June there was a break in the Oklahoma tankcar price for regular grade gasoline, the industry's most important open market quotation. At the same time there was a decline in one of the eastern gasoline markets. Weakness in gasoline markets was reported in other refining areas.

CRUDE PRODUCTION *3,621,500 barrels daily average—up 31,918 barrels.*

CRUDE STOCKS *309,036,000 barrels as of October 2—up 1,062,000 barrels.*

GASOLINE STOCKS *65,760,000 barrels as of October 16—up 228,000 barrels.*

REFINERY RUNS *3,380,000 barrels daily average past week—up 30,000 barrels.*

The price declines of one-eighth and one-fourth cent per gallon are not in themselves alarming, although the loss of revenue is important to several small Mid-Continent refiners who are having difficulty in making plant revenues balance operating costs. Market observers feel the market weakness is additional evidence of the fact that there has not been sufficient reduction in plant operations justified by seasonal conditions and other developments in the marketing end of the industry's operations.

They point to the fact that while there was a reduction of more than 150,000 barrels daily in crude oil production during September from the record output of late August, refinery operations continued at the peak summer levels. There has been a decline in plant operations since the first of the month and this trend if continued will bring about a sounder operating position by the end of the month.

In addition to gasoline, weakness has been apparent in residual fuels, the other principal product secured from a barrel of crude oil. Curtailment of operations in steel and allied industries has materially reduced the anticipated industrial demand for heavy fuels over the remainder of the year. Six months ago these fuels probably were the strongest product of the refinery market, but the decline in demand is changing this situation. In the east there have been indications that yearly contracts for the heavy fuels may be renewed at slightly lower price levels than those in effect over the past six months.

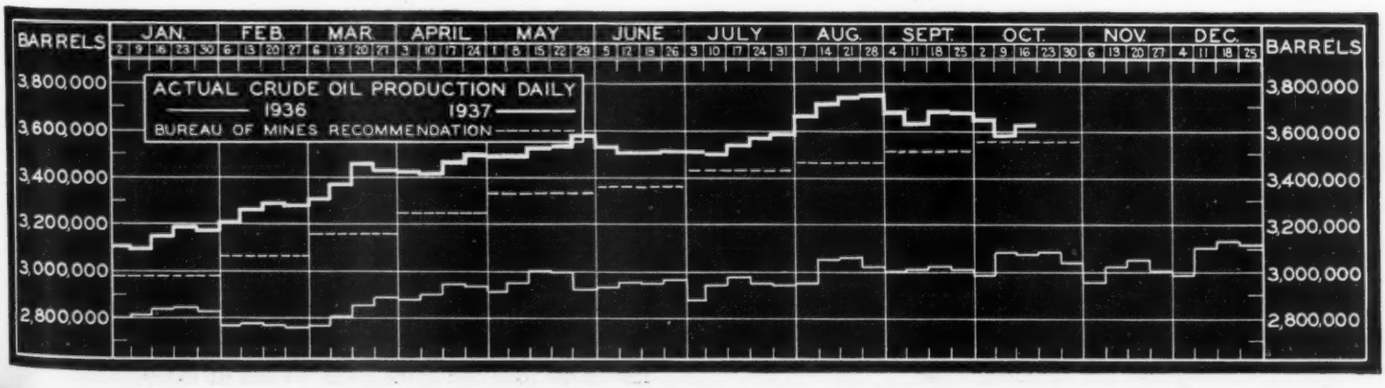
The weakness in gasoline, it is explained, is not due to an unexpected slump in gasoline consumption. In most cases the fall decline in motor fuel consumption has not been as great as expected at the end of the summer, and apparently is running 8 to 10 per cent ahead of the same period last year.

It was apparent the first of the week that recommended crude oil production for November will be substantially below October. It was announced that the Bureau of Mines recommendation for Oklahoma will be 598,000 barrels daily, or 31,200 barrels less than the October recommendation. Similar declines are expected for other states. Texas authorities have announced that the production of that state will be reduced next month.

Daily Average Production for Week

	Oct. 16, 1937	Bur. Mines Oct. est.	Oct. state allowables	Oct. 9, 1937
Oklahoma City	144,750	.....	.....	150,575
Fitts	79,950	.....	.....	70,225
Remainder of state	370,725	.....	.....	365,250
Total Oklahoma	595,425	629,200	600,000	586,050
East Texas	488,498	.....	.....	484,397
West Texas	214,000	.....	.....	212,550
North Central Texas	109,000	.....	.....	107,899
Texas Panhandle	78,747	.....	.....	65,447
East Central Texas	109,048	.....	.....	115,350
Gulf Coast—Texas	349,050	.....	.....	352,100
Southwest Texas	119,449	.....	.....	120,548
Total Texas	1,467,792	1,430,300	1,416,789	1,458,291
North Louisiana	73,260	.....	.....	76,785
Gulf Coast Louisiana	173,600	.....	.....	171,147
Total Louisiana	246,860	254,600	266,700	247,932
California	699,250	660,000	660,000	699,750
Kansas	191,000	199,900	193,800	180,200
Arkansas	42,985	36,000	.....	40,595
Eastern fields	137,000	128,800	.....	138,200
Michigan	53,618	43,500	.....	53,414
New Mexico	104,030	106,400	104,000	104,060
Rocky Mountain area	83,540	79,400	.....	81,090
Total United States	3,621,500	3,568,100	.....	3,589,582

Increase, 31,918 bbls. daily.



SPARKS FROM THE NEWS

FRONT LINE PRODUCT

Military men abroad have complained there is not enough iso-octane to run all of the aircraft engines already built. American refiners have this situation in mind in their expansion programs for next year.

1938 OUTLOOK

The filling stations' new customers—the 1938 cars—are now making their debuts. More car at little or no increase in costs parallels the accomplishments of the oil business and gives a favorable outlook for both industries next year.

SANTA CLAUS NO LONGER

Oil companies seem to present a solid front against entering new producing fields which require large expenditures to drill unless they control a major portion of the area involved. They are not interested in areas which would not be operated on a sound basis.

SHORT LIVED

Too many of the current crop of Mid-Continent wildcats are prospective pool-openers one day and dry or water holes the next.

WELL TIMING

Colonel Thompson figures that every 45 minutes sees a new producing well completed in Texas.

REVIVAL

The old K.M.A. pool, one of the North Texas boom fields of nearly two decades ago, may stage a comeback with a deep-sand discovery.

DISCOVERIES

The past week's field reports present an imposing array of favorable wildcat showings, important extensions and new sands.

SYMPOSIA OF PETROLEUM

DO YOU REALIZE THAT EACH YEAR THE EQUIVALENT
OF THESE 20 VOLUMES IS PUBLISHED IN-
the OIL AND GAS JOURNAL
NEWS
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VIRTUALLY PUBLISHED DURING THE CURRENT YEAR
THE OIL AND GAS JOURNAL

Every phase of the oil industry represented in the 20 volumes is fully covered in the 52-week, 7,838-page volume of The Oil and Gas Journal exhibited at The Journal booth in the Oil-World Exposition at Houston, Tex.

CONSISTENCY?

With prospects of peak earnings for the last quarter, oil stocks now are selling at 35 to 75 per cent of their highs for the year.

EXPORTING EXPERTS

American drillers, directed by a Texas production man, will do the work on a new test in England.

ONE WAY

Some Mid-Continent refiners, declaring they would have to operate at a loss at the prevailing tankcar prices, are closing their plants.

GRADUATES

In recognition of their growing importance Standard Oil Co. of California has added the Wilmington and El Segundo fields to its graduated posted price schedules, beginning on October 15.

UNIFORM PRICES

Jobber witnesses at Madison complain because they are asked by refiners to pay approximately same prices for the same grade product. This has always been true in oil marketing and reflects a basic condition in which staple commodities of the same specifications in a particular market, bring uniform prices in both jobber and consumer sales.

REAL DUTY

Secretary Ickes at Houston stresses the fact that principal responsibility of the Interstate Oil Compact Commission is the furtherance of conservation through the promotion of sound operating practices. The compact's committees appointed to make the studies so far have failed to make important recommendations.

LOOKING AHEAD

Motor fuels and lubricants must anticipate the need 10 years hence. Dr. Egloff told a group of prominent engineers this week that within that period we will be traveling twice as fast on the road and in the air as we can do today.

Officers and members of the executive committee of I.P.A.A. at Houston. Charles VanVleck, field manager, Tulsa; Wirt Franklin, Oklahoma City; Van S. Welsh, Artesia, N. Mex.; Joe S. Bridwell, Wichita Falls, Tex.; N. T. Gilbert, treasurer, Tulsa; Joe Aylward, Wichita, Kans.; Charles F. Roeser, president, Fort Worth, Tex.; R. B. Brown, general counsel, Washington, D. C.; Ralph T. Zook, Bradford, Pa.; Winston P. Henry, Houston, Tex.; Frank C. Condon, Longview, Tex.; C. E. Buchner, executive manager, Tulsa; T. J. Steuart, assistant to president

Revised Five Point Program Is Approved by I.P.A.A.

By NEIL WILLIAMS

HOUSTON, Tex., Oct. 18.—Adoption of a revised "five-point program" calling for renewed efforts to obtain closer balance of crude supply with demand and greater conservation of natural resources, and instigation of more intensive and extensive activities constituted the more important accomplishments of the eighth annual convention of the Independent Petroleum Association of America at Houston October 14 and 15.

The convention, one of the principal associated events of Oil-World Exposition week, was regarded by leaders of the association as being one of the most successful.

Charles F. Roeser, Fort Worth, Tex., was re-elected president for a third consecutive term; Harold B. Fell, Ardmore, Okla., vice president; Russell B. Brown, Washington, D. C., general counsel; T. J. Steuart, Washington, assistant to the president; N. T. Gilbert, Tulsa, treasurer; C. E. Buchner, Tulsa, executive manager, and Charles VanVleck, Tulsa field manager.

Members of the executive committee elected were: J. Steve Anderson, Oklahoma City; H. D. Atha, Mount Pleasant, Mich; J. S. Bridwell, Wichita Falls, Tex.; Frank C. Condon, Longview, Tex.; Wirt Franklin, Oklahoma City; Winston P. Henry, Houston; Joe Aylward, Wichita, Kans.; H. M. Stalcup, Tulsa; Van S. Welch, Artesia, N. Mex.; Ralph T. Zook, Bradford, Pa., and Mr. Roeser, Mr. Fell and Mr. Gilbert.

In addition to limitation of imports, maintenance of domestic production within the limits of national consumptive demand, discontinuance of excessive drilling, and provision of voluntary agreements within the industry, the revised five-point program adopted seeks correction by congress of admitted inequalities in our present tax laws, notably taxation of undistributed profits, exemption of legitimate royalty companies from punitive taxation directed to tax evaders and continuance by congress of the depletion deduction for the petroleum industry at the existing rate.

The association will oppose with greater intensity any effort to eliminate or reduce the present depletion allowance, termed one of the most important matters before the convention. Increasing taxation on the industry in general was condemned.

After considerable discussion, the association went on record opposing excessive drilling. No restriction of wildcatting is favored as the necessity for new reserves was recognized. In a report of the subcommittee on unnecessary drilling it was said an extremely unprofitable operating condition had resulted from drilling of wells above those required to provide adequate drainage, not only in the actual costs but also by creating a greater number of wells to share in the market for oil.

The report emphasized it did not deal with conditions in old fields, nor recommend any change in spacing regulations or in proration plans in such fields, but was concerned only with new fields and fields in early stages of development. It was recommended that "while the drilling of unnecessary wells can be prevented by proper regulation of spacing, it is clear the most effective method must be based upon a proper method of distribution of allowable production for each field."

One important subject was the pollution bill before the next session of congress. The proposed bill was termed an invitation for racketeers to harass the oil companies, as well as municipalities, with unjust damage suits. The effect the bill will have on the oil industry was presented by J. D. Collett of Fort Worth. The work the association is doing to oppose its passage was stressed also by Russell B. Brown, general counsel, in his annual report.

One of the highlights was an address by Harold L. Ickes, secretary of the interior, at the annual banquet Friday night (published on pages 35-36 of this issue of The Oil and Gas Journal).

Jesse H. Jones, president of the Reconstruction Finance Corp., addressed the oil men at a luncheon Thursday noon. He stressed the need of patience and co-operation between business

Winston P. Henry, Putnam Oil Co., Houston; E. A. Landreth, Landreth Production Co., Fort Worth; Phil E. Laughlin, independent, Houston, and Howard R. Merry, independent, Midland, Tex.

and government. Business, he said, must recognize the trend.

The great progress made by the oil industry and the many achievements of independent oil men in providing better conditions were pointed out by Charles F. Roeser, president of the association, in his opening address. The most important achievement, however, has been cooperation, Mr. Roeser said.

"We have learned to get together," he declared. "We have developed strength through union. We have learned to sit down with each other, face our problems and work out their solution. We have developed cooperation to a degree which the industry has never known before. It is this union of effort and blending of our forces which has made possible our successful achievements in the past year for the benefit of the entire industry."

Russell B. Brown, general counsel, in his annual report of the work of the association at Washington, outlined the progress made in legislative matters affecting the independent oil men.

The report of the public relations committee presented by Burdette Blue of Bartlesville, Okla., chairman, urged a definite program of educating the public as to what the industry had accomplished in development and conservation of petroleum reserves.

The association unanimously adopted resolutions commending the work of the Interstate Oil Compact Commission; petitioning congress to impose an adequate tariff on imports, and adopt legislation to restrict imports to a volume not in excess of 4.5 per cent of the consumptive demand in this country; petitioning congress to eliminate the sales taxes on gasoline and lubricating oil; asking state legislatures to reduce state taxes to such a rate as will not adversely affect the consumption of these products or unduly burden consumers, and discontinue diversion of gasoline taxes; and urging legislatures to establish penalties for drainage of oil in excess of proration quotas.

The association recommends that members in the various states propose to the legislative bodies in their states the adoption of a statute which shall be substantially like the following, submitted to the association by Judge Amos L. Beaty:

"When an oil pool is under proration or restriction upon production by authority of law, and any operator during any month shall produce more than his fixed allowable from any well, the owner of the nearest producing well located on other property and the same structure, in addition to other remedies at law or in equity, shall be entitled to recover of the offending operator the full value of the oil so produced in excess of allowable, may apply for and obtain an attachment against the property of such operator without showing any other statutory ground therefor, and shall also have a lien upon the offending well and its equipment. A lessee of the land, or owner of the working interest, may maintain suit for the benefit of himself and the royalty owner. In the event the owner of the nearest well does not bring suit within 60 days after the end of the month the cause of action shall revert to the owner of the next nearest well so located and he shall have the same period in which to sue. In like manner it shall revert successively for four such periods. And in any suit hereunder either party may file interrogatories to the other party, or, in case of artificial persons, to any officer thereof or manager of the property, and obtain without notice a commission to take his deposition. Interrogatories which the witness refuses to answer or answers evasively shall be taken as confessed."

The president of the association was authorized to appoint a legal committee to prepare a bill or bills to make this principle a part of the statutes of the oil-producing states, and be available for introduction and passage at the present session of the legislatures.

Interstate Compact Hears Warning on Production

HOUSTON, Tex.—A warning that the present rate of production is 100,000 bbls. too high and must be reduced if the industry is not to carry over a greatly excessive supply next spring, was issued by Joseph E. Pogue, vice president in charge of the statistical department of Chase National Bank, New York, at the quarterly meeting of the Interstate Oil Compact Commission in Houston October 14.

Mr. Pogue predicted that, although there would be an increase in gasoline consumption of about 4.8 per cent over this year, business generally during 1938 would be about 10 per cent below 1937. He estimated that the industry to meet domestic demand, will need 3,500,000 bbls. daily production during November; 3,450,000 bbls. daily during December; 3,425,000 bbls. daily during the first quarter of 1938; 3,550,000 bbls. daily during the second quarter; 3,650,000 bbls. daily during the third quarter, and 3,600,000 bbls. daily during the last quarter of that year. This would be an average daily production of around 3,560,000 bbls.

Governor E. W. Marland of Oklahoma, later observed that "For more than 40 years I've been listening to dire predictions on the shortage of oil or lack of consumption. They can't scare me anymore. I have a hunch that although we have another depression, we will have enough increased demand for petroleum products." He added that two things are necessary for the industry. One is to conserve proved fields, and the other to encourage wildcatting.

Col. E. O. Thompson, member of the Texas Railroad Commission and chairman of the Compact Commission, said that, as long as he had anything to say about it, the allowable production of Texas never would be increased to supply foreign war demands.

Colonel Thompson was reelected by acclamation as chairman of the commission. Lieutenant Governor Hiram M. Dow of New Mexico was elected first vice chairman, and William Bell, compact commissioner from Illinois, second vice chairman. Art Walker of Oklahoma was chosen secretary. Oklahoma City was chosen for the next quarterly meeting.

In addition to the representatives of the six states in the compact, Colonel Thompson, Texas; Lieutentant Governor Dow, New Mexico; William Bell, Illinois; State Senator Tom Anglin, Oklahoma; E. M. Thomasson, Colorado; and Ernest L. Blinco, Kansas, observers and special visitors introduced at the sessions were J. R. Pemberton, California; Walter A. Jones, Pennsylvania; C. A. Marvant, Louisiana; W. H. McFaddin, Colorado; Pierre La Fleiche, Wyoming; Lon Smith, Texas Railroad Commission; Van Welch, New Mexico; Wirt Franklin, Oklahoma; Elwood Fouts, Texas; E. G. Dahlgren, Marvin Lee, E. K. Sloan and Ennis Harris, Kansas; Jack Blalock, Texas; Charles F. Roeser, president, Independent Petroleum Association; Jake Hamon, president, Texas division, Mid-Continent Oil and Gas Association; Frank Worden, land commissioner, New Mexico; Glen Macey, state geologist, New Mexico; Axtell J. Byles, president of the American Petroleum Institute, New York; Harry C. Wiess, president, Humble Oil & Refining Co.; Otto D. Donnell, president, Ohio Oil Co.; D. E. Buchanan, Hanlon-Buchanan, Inc., Tulsa; W. R. Boyd, executive vice president, American Petroleum Institute.

Oil-World Exposition Success Inspires Plans for 1939

HOUSTON, Tex., Oct. 18.—With success far exceeding expectations, the first Oil-World Exposition was brought to a close Saturday night and plans are under way for the next exposition in the spring of 1939, either the last week in April or early in May. It was estimated the exhibits were viewed by more than 150,000 persons. During the week meetings of various technical groups were held including a conference on drilling technique by the petroleum division of the American Society of Mechanical Engineers, sponsored by the exposition's drilling committee.

Commenting on the success of the exposition, John R. Suman, president of the exposition, said, "The enormous size and huge success of the 1937 Oil-World Exposition has taken me and all of our directors by complete surprise. The manufacturers, the citizens of Houston, and the entire oil industry are to be congratulated on the whole-hearted cooperation and participation in this great international event."

The closing event was the championship first aid contest won by the Tomball production department of Humble Oil & Refining Co. Second place went to Humble Oil & Refining Co. sales department at Houston, while third place was won by Empire Pipe Line Co. at Gladewater. The championship team included R. V. Thomas, captain, J. E. Lawrence, D. E. Faulk, W. D. Campbell, R. M. Upchurch, W. R. Choate, F. W. Aebi and W. C. Cornelison.

Details of the Oil-World Exposition of 1939 are being worked out and preliminary plans are for a $4,000,000 exposition which will double the size of the show. At least 50 per cent more space outdoors and 50 per cent more space under cover will be required, officials stated. Portable steel buildings adjacent to or in the vicinity of the coliseum will replace the large tent.

Main Purpose to Aid the Small Refiner Says Key Witness

By R. B. PYRE

MADISON, Wis., Oct. 19.—W. P. Jacobi, of Tulsa, widely known in marketing circles and said by the government to be its "key witness" today denied that the primary purpose of the buying program was to raise tankcar prices. The primary purpose was to remove the surplus and the majors naturally hoped that a better market would result, he insisted.

He was confronted by his grand jury testimony on this point but the court, after it was read, ordered it stricken, declaring it did not differ essentially from his statement today.

Jacobi said H. T. Ashton made a comprehensive statement at a meeting in which he declared the main purpose of the gathering was to move distressed gasoline, and in so doing enable the small refiners to get money to pay for crude, place them in a better frame of mind so they would be in a position psychologically to go out and ask more money for their regular run product.

After having said several times before the grand jury that he thought R. H. McElroy, Jr., sales manager of Pure Oil Co. and a defendant, was present at the St. Louis meeting, Jacobi today said positively he was not and that McElroy did not attend any subsequent meetings.

Opening its third week, the oil trial plunged Monday from the humdrum of contracts and price trends into the dramatic phases of the government's case.

Having, throughout the first week of testimony, endeavored to picture the effect upon independent jobbers caused by an alleged conspiracy to "rig" the market and control the industry, the prosecution suddenly launched its efforts to show the "inside workings" of the majors' gasoline buying program among independent refiners of the Mid-Continent and East Texas fields in 1935 and 1936.

It called Jacobi, gasoline buyer in both those fields for the Socony-Vacuum Oil Co. and its subsidiary, Wadhams Oil Co., and a battle ensued at the outset when the government sought to limit his testimony to bring out its own interpretation of Jacobi's activities as the alleged "liaison man" between the majors and the independents.

Over vigorous defense objection, government counsel brought out that Jacobi had demanded immunity as a witness last year before the grand jury. During his testimony, the defense encountered anew the difficulty it confronts in presenting its contention that whatever the indicted men did was in line with the government's stabilization policies during NRA days.

This defense was argued and limited at the outset of the trial, and Jacobi interjected an obvious effort to sustain it as an unwilling government witness.

He was telling of a meeting to which he had been invited, in the office of H. T. Ashton, manager of Socony-Vacuum lubrite division, at St. Louis, Mo., on March 5, 1935. This was shortly after the period when the government charges the conspiracy began.

Representatives of seven indicted major companies and four independent refinery men were present, he testified. John H. Lewin, government attorney, asked him if "a plan" was discussed at the meeting.

Jacobi answered affirmatively, and the defense insisted he be permitted to tell the entire discussion, but the government insisted, and was sustained, that he confine his testimony to "the plan."

It was a plan, Jacobi said, for purchase of gasoline by the major companies from independent refiners in Oklahoma, Kansas and North Texas. He had stepped out for a time and upon his return saw a paper on the table before Ashton, containing data from A. V. Bourque, secretary of the Western Petroleum Refiners Association, showing the number of carloads of distress gasoline the refiners would have available for purchase during that month.

Before the unsuspecting examiner could halt him, Jacobi stepped "out of bounds." He understood, he said, that all the representatives of major companies present were members of the tankcar stabilization committee appointed by C. E. Arnott, vice president of Socony-Vacuum company. The government claims Arnott was the "master mind" of the conspiracy charged. The defense contends Arnott appointed stabilization committees under his legal authority as chairman of the Planning and Coordination Committee set up by the petroleum code.

Lewin, springing to his feet with a protest that "this just shows what a hostile witness will say when given the chance," demanded the statement be stricken out, and the court so ordered, despite a vociferous protest from defense attorneys. It had, nevertheless, reached the ears of the jury.

The independent refiners discussed their distressed condition freely at the meeting, telling of the gasoline standing in cars on their tracks, without a market, and seemed encouraged at the efforts being made to help them, Jacobi continued.

He said he was asked to take care of the supply offered by Champlin Refining Co., and others indicated they could use gasoline from other companies on Bourque's list. Ashton said he personally would contact other major companies, including Sinclair, Barnsdall, Pure Oil, Skelly and Deep Rock.

It was a "distinct effort" on the part of the buying companies, Jacobi explained, to figure out some means of relieving the small refiners.

Those present at the St. Louis meeting, he said, included, in addition to himself and Ashton, Robert N. McDowell, vice president, Mid-Continent Petroleum Corp.; O. J. Tuttle, sales manager, Empire Oil & Refining; I. A. O'Shaughnessy, president, Globe Oil & Refining; P. E. Lakin, general sales manager, Shell Petroleum Corp.; Edward M. Karstedt, vice president, now retired, Continental Oil Co.; A. M. Hughes, sales manager, Phillips Petroleum Co.; Clyde M. Boggs, president, Western Petroleum Refiners Association; W. J. Coconauer, president, Olney Oil & Refining Co., Olney, Tex.; R. H. Winget, president, Cushing Refining Co., Cushing, Okla., and L. B. Simmons, president, Rock Island Refining Co., Duncan, Okla.

Before Jacobi described the St. Louis meeting he testified he had sent weekly market letters from Tulsa in 1935, at the request of A. D. Maguire, president, Wadhams Oil Co., to Maguire at the Milwaukee, Wis., office, and sent copies of the letters to other division offices of Socony-Vacuum company.

Over defense objections, the court admitted in evidence copies of Jacobi's market letters for February 8 and 15, but they were not read, for the time being, to the jury.

Before Jacobi took the stand, the defense had prevailed in one instance, when it brought about withdrawal of two graphs submitted by W. J. Mil-

Next Week

The Oil and Gas Journal for October 28 will feature the

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Production Map

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ler, special agent and accountant from the federal bureau of investigation. Miller had been on the stand presenting a study of price trends through which the government sought to show that during the period of the alleged conspiracy there were close parallels between the rises in quoted prices on third grade gasoline purchased on the "spot market," the tankcar prices of regular or house brand gasoline, and the posted retail prices at service stations.

In some of the graphs Miller employed as a basis the yearly oil price handbook published by National Petroleum News Co. and taken from daily quotations from Platt's Oilgram. To show weekly trends he employed the Oilgram's low quotations published on Mondays.

Defense attorneys objected to the introduction of each successive graph, charging it did not present a "fair picture," and that fluctuations during the remainder of each week were not shown. Judge Stone, however, permitted their introduction, after directing in each case that the captions be changed from "weekly prices" to "Monday prices."

Miller's analysis showed an upward trend at the rate of one-eighth of a cent a gallon on third grade gasoline almost every succeeding Monday from April to late May, 1935, the early period of the alleged conspiracy, and a leveling from that time to the end of the year, with a rise in January and fluctuations up to and below six cents during the period of late May to the fall of that year, while the grand jury was in session. Miller showed a similar trend in regular gasoline and in retail prices as determined from the average of posted prices in 28 middle-western cities in Standard Oil of Indiana territory.

"Distorted Picture"

As a parallel comparison he presented figures to show that on May 6, 1935, the quoted low price on third grade gasoline was 4⅝ cents, the low price on regular 5¼ cents, and the filling station price 13.56 cents; while on January 20, 1936, after the conspiracy allegedly had been in operation nearly a year, the low quotation on third grade gas was 5¼ cents; regular 6⅛ cents and the average retail price 13.96 cents after deducting taxes.

Then he produced a graph showing monthly quotations for third grade gasoline based upon weekly prices published, and showing an identical rise and fall, in the Chicago Journal of Commerce and Platt's Oilgram.

"You are using four Mondays to strike a monthly average," Col. W. J. Donovan protested after showing, on cross examination, a series of price changes on Tuesdays and pointing out that in 1935 and 1936 there were 70 changes in oilgram quotations of which only 17 occurred on Mondays, and 83 changes in Journal of Commerce prices, only 13 of which were on Mondays.

Judge Stone sustained a government objection when Donovan asked Miller if he did not think his graphs represented a "distorted picture" of market changes, but the turn of events occurred when Donovan pointed out that the Monday prices published in the Journal of Commerce are actually Saturday prices, and Maurice Hanning, counsel for the Oilgram, noted with a grin that the Monday prices published in the Oilgram are Monday prices.

Hammond E. Chaffetz of the government staff argued that the difference in days did not cause a discrepancy of any importance, but the court ruled the figures were "out of line" and directed the graph be withdrawn, at least pending revision, and later directed that another graph using combined journal and Oilgram figures be withdrawn.

Preceding the argument on price trends, defense attorneys had attacked Miller's analysis of sample jobber contracts submitted by the various defendant companies showing a general uniformity. Weymouth Kirkland, representing Standard Oil of Indiana, brought out that his company had issued only two jobber contracts, in a period of six years, one of which had been canceled, while the other contained no reference to prices in any trade journal as a basis of the jobber's price.

Col. Donovan pointed out, through Miller, that jobber prices, under the contracts, were no longer determined by quotations in the journals after the marginal provisions of the contract came into operation.

S. A. L. Morgan, attorney for Texas Co., charged that Miller, in analyzing the contracts, did not take into consideration that while few forms were adopted in 1935, there were still in operation other types of contracts in which a flat discount was provided without regard to published quotations.

Jobbers on Stand

The first week of testimony was devoted almost entirely to the stories of independent jobbers from Wisconsin, Illinois, Iowa, Indiana and Missouri, who described uniform contracts employed throughout the "Standard of Indiana territory" and their difficulties in "making a living" under the margins allowed.

Most of them were members or officers of state and national marketing associations whose complaints to the department of justice were a factor in bringing about the prosecution.

The majority identified their agreements as "split margin" contracts allowing them 5½ cents, or 2 cents above a retail dealer allowance of 3½ cents, though there were variations in the marginal provisions, the Missouri jobbers reporting margins of 6 cents when the dealer margin was 4 cents and 5½ cents when the dealers received 3½ cents.

Near the close of the week the defense interposed a fundamental objection to the entire line of testimony, protesting any inference there was an agreement among the defendant companies in respect to uniform contracts. There is no such charge in this case, Colonel Donovan told the court.

Another indictment, still pending, charges most of the defendants with combining to restrict jobber margins by uniform contracts. Government counsel agreed there is no such charge in the present case, but explained the indictment alleging a conspiracy to "rig" the market by cooperative buying pools charges that the majors operate on a standardized type of contract, based upon quotations in defendant journals, and that the jobbers are unable to obtain any other type of contract.

It thus became apparent one of the government's purposes in presenting the experiences of the jobbers was to bolster its case against the Chicago Journal of Commerce, Platt's Oilgram and the National Petroleum News, accused of abetting the averred conspiracy by publishing artificially raised prices on small purchases in the spot market.

The prosecution also sought to show through some of the jobbers that a stabilized level of peak prices during a major part of 1935 was attributable to the supposed conspiracy. The defense scored, however, in winning the right to show through the same witnesses that there were "natural and reasonable" explanations for the rise of prices in that year.

Attempts of the court to obtain stipulations as a means of shortening the case were unsuccessful, the defense particularly refusing to stipulate that the jobber contracts were uniform, declaring it will show they were "very different."

The jobber testimony was varied just before court adjourned over the week-end by the government's presentation of W. J. Miller, special agent and accountant in the Federal Bureau of Investigation, who described the results of his analysis of a stack of specimen contracts furnished by the defendant companies.

Miller testified that 1,461, or 84.5 per cent, of 1,729 contracts with jobbers in 1935 provided a basic price calculated upon the average of the high and low averages of spot market tankcar prices published in the Chicago Journal of Commerce and Platt's Oilgram.

None of the contracts was based solely upon Oilgram quotations, but 100 were predicated on Journal of Commerce prices exclusively, and 168, including 122 Sinclair Refining Corp. contracts, were calculated on some other basis. The 122 Sinclair contracts, he explained, used the "seller's open market tankcar price" as the basis, and one of them defined the seller's open market as the low of the Journal of Commerce day-to-day quotations. Miller added, however, that this was not meant to imply a general definition. In 1936, he said, there were 537 contracts of which 429, or 79.9 per cent were based jointly on Journal of Commerce and Oilgram quotations, none of them on the Oilgram exclusively, 90 on the Journal of Commerce alone, and 18 on neither.

A defense motion to suppress all documents subpoenaed as evidence, on grounds of "illegal search and seizure," was denied by Judge Stone early in the week. The documents were brought to Madison for use of the first grand jury early in 1936, the legality of which was unsuccessfully challenged. They were impounded for use of the second grand jury which brought the indictment December 22, 1936, on which the trial is proceeding. The defense motion contended they could not be used legally because they were not re-subpoenaed.

Under court rules, the motion was presented when the first documents in question were offered in evidence by the proscution. (By the end of the week 656 exhibits had been marked for identification). They consisted of a sheaf of telegrams alleged to have been sent in 1935 by J. M. Bradshaw, of Dallas, Tex., to W. H. Barber & Co. of Chicago, brokers and marketing agents for independent refiners. They contained, the court was told, East Texas market data from Bradshaw, who was described as a buying agent for the Gulf Oil and Gulf Refining companies, and the prosecution said it will prove he was a coconspirator, though he is not named in the indictment.

Reserves Ruling

The telegrams were offered through William Lanzer, manager of the Barber company's refined oil sales division, and the defense objected to their admission. Judge Stone, after considering the objection overnight, pointed out the two men have not yet been shown to be parties of the action, and reserved his ruling until Bradshaw is subpoenaed as a witness.

Lanzer said his company handles about 60,000,000 gallons of gasoline yearly, selling to about 200 jobbers. It has been sales agent for the Globe Oil companies of Illinois and Oklahoma, defendants, and one of the Tide Water companies, he testified. It also handles unbranded products, having purchased "occasionally" on the spot market. It sells 90 per cent of its purchases to jobbers on contracts predicated upon Journal of Commerce price quotations, he said.

A tendency began to develop among jobbers late in 1934, Lanzer asserted, to quit buying on the spot market and purchase under contract with major companies. Some of the principal factors governing the trend, he declared, were the greater trade acceptance of major brands because of advertising, a growing inclination among jobbers to know where their merchandise was coming from and that it was of uniform quality, and the marginal guarantees contained in the contracts were a contributing element. For a time late in 1934, he testified, marginal prices afforded a lower cost than the spot market.

Like Carl O. Beroth, Chicago broker who was

(Continued on Page 30)

Geology of Appalachian Area A.A.P.G. Topic at Pittsburgh

By J. P. O'DONNELL

PITTSBURGH, Pa., Oct. 16.—Nearly 300 members of the American Association of Petroleum Geologists assembled here for the fifth semiannual meeting, devoted in the main to papers and discussions of the geology of the Appalachian region.

The technical meetings were preceded by a three-day field trip that took 80 geologists through the Blue Ridge, Appalachian and Allegheny Mountains of Maryland, Virginia, West Virginia and Pennsylvania. At Charleston, W. Va., the group was welcomed by Governor Holt and heard papers on the early history of oil and gas production by William O. Ziebold and on developments since I. C. White advanced the anticlinal theory by Paul H. Price, West Virginia state geologist. The Appalachian Geological Society was host at the Charleston meeting, attended by 180.

Following the convention, a similar group made an overnight trip to the Drake well near Titusville, Pa., inspected repressuring operations in adjacent fields, studied water-flooding in Bradford and toured the Oriskany sand gas fields of Tioga and Potter counties. These tours were arranged by Gordon Gulley, Gulf Oil Corp.; R. E. Sherrill, Carnegie Institute of Technology, and Doctor Price.

J. French Robinson, president of the Peoples Natural Gas Co., Pittsburgh, welcomed the geologists at the opening session Thursday afternoon, and H. B. Fuqua, Gulf Oil Corp., president of the association, responded. R. W. Clark, Gulf Oil Corp., general chairman of the committee in charge of local arrangements, opened the meeting.

George H. Ashley, Pennsylvania state geologist, began the technical sessions with a discussion of the history and development and the geologic relationships of the Appalachian fields. Doctor Ashley's liberally illustrated paper, is published in this issue of The Oil and Gas Journal, page 57.

L. L. Nettleton, Gulf Research and Development Corp., told of the work in making a 175-mile continuous profile with gravity and magnetic values at intervals of about 1 mile across the Appalachian Mountains. Geophysical work suggests, he said, that the "Appalachian folding in this area is caused by a sliding of the sediments over the basement; presumably as a result of thrusting from the east; this, in spite of the indication that to a large extent the topography of the area is isostatically compensated."

Multiple series detector systems are found unsuitable to the Appalachian area because of erratic weathering conditions, L. E. Randall, president, Geophysical Co., Inc., said. He called attention to the local decrease in velocities of surface masses that are surrounded by a deeply eroded stream pattern. Mr. Randall expressed the opinion intermediate reflections of smaller amplitude, largely obliterated by the composite system, might be made very useful in the future. Experiments have been made to demonstrate a possible use of these minor impulses in determining the probable porosity of a sandstone between two limestones of persistent lithologic character.

Charles R. Fettke, professor of geology at Carnegie Institute of Technology, in his paper on "The Oriskany of Pennsylvania," described the Tioga field, first Oriskany sand gas field in the state, as typical. This field, approximately 71,000 acres in extent, has produced about 5,000,000 feet per acre, he said. Wells, all located on a dome closure on an anticlinal (Sabinsville) trend, have had initial open flows ranging up to 73,000,000 feet per day with an average initial rock pressure of 1,650 pounds.

Regarding future possibilities in Pennsylvania, Doctor Fettke said it seems improbable there will be further discoveries of large Oriskany pools in north central Pennsylvania but, though exploration has been discouraging in the northwest, possibilities exist there. He also said the Oriskany apparently underlies most of the virtually unexplored southwestern section of the state.

Robert C. Lafferty, Owens-Libbey-Owens Co., Charleston, W. Va., reviewed the history of the West Virginia Oriskany fields: Cooper's Creek, opened in 1934, and Campbell's Creek and Elk-Poca, opened in 1935. The present extent of these fields approximates 43,000 acres, Mr. Lafferty said, and, while the ultimate limits of all three have yet to be determined, he estimated final definition of their extent will find them embracing 75,000 acres.

Wilbur H. Stout, state geologist of Ohio, described the peculiarities of subsurface formations in Ohio and visioned production beyond the limits of proven fields when these peculiarities are followed out. He also spoke of the possibilities of oil or gas production in western Ohio and said indications are there which at least warrant a test or two. The lack of structure in the state discourages Oriskany sand exploration, he said, stating further that the Cambridge arch is the lone true structure in Ohio.

The Medina and Trenton sands of New York state were the subject of C. A. Hartnagle of the New York State Museum. Discussing the Medina first, he said exploratory work is carried on blindly because of lack of structure. While most Medina wells are of moderate production, they are profitable on account of their long life and accessibility to markets. He credited Medina sand wells with half the state's annual gas production of 7,000,000,000 feet. He expressed the belief develop-

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American Association of Petroleum Geologists in session at Pittsburgh, Pa.

A. P. I. Annual Meeting Program Extends an Additional Day

Industrial research will be the featured topic at the eighteenth annual meeting of the American Petroleum Institute November 8 to 12 in Chicago, with addresses by Charles F. Kettering, vice president and director of research for General Motors Corp., and Dr. H. E. Howe, of Washington, D. C., editor of Industrial and Engineering Chemistry. The third guest speaker will be Congressman Wesley E. Disney, of Tulsa.

An additional day will be devoted to committee meetings, of which more than 60 are scheduled, Monday and Tuesday being given over to committee meetings, with the first general session Wednesday afternoon, when Doctor Howe will speak on "The Significance of Petroleum Research—Its Value to the Public, Its Necessity to the Industry." The annual presidential address will be delivered by President Axtell J. Byles. The third speaker will be J. D. Collett, of O'Keefe & Collett, Fort Worth, Tex.

At the second general session Thursday afternoon, Mr. Kettering, Congressman Disney, and George A. Hill, Jr., of Houston Oil Co., vice president for production, will speak. The annual dinner will be held Thursday night.

The terms of office of 9 officers of the Institute, 51 members of the board of directors, and of 75 members of divisional general committees expire at this meeting. Nominations for membership on the board will be made by the board of councillors Wednesday morning. Elections will be held at the general session Wednesday afternoon. Directors whose terms expire follow:

Production Group: Pacific Coast, S. Belither, Shell Oil Co.; W. C. McDuffie, Richfield Oil Co.; Rocky Mountain, B. B. Brooks, Consolidated Royalty Oil Co.; Central United States, Burdette Blue, Indian Territory Illuminating Oil Co.; J. Edgar Pew, Sun Oil Co.; Frank Phillips, Phillips Petroleum Co.; Charles F. Roeser, Roeser & Pendleton, Inc.; and Eastern United States, O. D. Donnell, Ohio Oil Co.

Manufacturing Group: Pacific Coast, R. D. Matthews, Union Oil Co.; Rocky Mountain, T. A. Dines, Salt Creek Producers Association; Central United States, H. R. Straight, Empire Oil & Refining Co.; and Eastern United States, Charles L. Suhr, Pennzoil Co.

Distribution Group: Rocky Mountain, W. H. Ferguson, Continental Oil Co.; Central United States, E. G. Seubert, Standard Oil Co. (Indiana); Eastern United States, W. T. Holliday, Standard Oil Co. of Ohio; Pipe Lines, Douglas S. Bushnell, Northern Group of Pipe Lines; Harry Moreland, Great Lakes Pipe Line Co.; and Tankcars, L. J. Drake, Union Tank Car Co.

Foreign Trade Group: Far East, H. D. Collier, Standard Oil Co. of California; and Mexico and South America, Richard Airey, Asiatic Petroleum Corp.

Supply Group: John A. Geismar, National Supply Co.

Natural Gas Group: T. B. Gregory, Manufacturers Light & Heat Co.

Natural (casinghead) Gasoline Group: D. E. Buchanan, Hanlon-Buchanan, Inc.

At-Large Group (elected by members): F. R. Coates, Cities Service Co.; J. D. Collett, O'Keefe & Collett; W. N. Davis, Phillips Petroleum Co.; R. C. Holmes, Shinglehouse, Pa.; H. T. Klein, Texas Co.; F. A. Leovy, Gulf Oil Corp.; J. F. Lucey, Lucey Petroleum Co.; E. W. Marland, Oklahoma City, Okla.; E. B. Reeser, Barnsdall Oil Co.; H. F. Sinclair, Consolidated Oil Corp.; J. W. Van Dyke, Atlantic Refining Co.; and H. C. Wiess, Humble Oil & Refining Co.

At-Large Group (elected by directors): C. E. Arnott, Socony-Vacuum Oil Co., Inc.; Paul G. Blazer, Ashland Refining Co.; E. DeGolyer, Felmont Corp.; J. Frank Drake, Gulf Oil Corp.; W. S. Fitzpatrick, Consolidated Oil Corp.; N. V. V. Franchot, D. W. Franchot & Co.; Alexander Fraser, Shell Petroleum Corp.; Jake L. Hamon, Cox & Hamon; Robert H. Colley, Atlantic Refining Co.; A. Jacobsen, Amerada Petroleum Corp.; B. L. Majewski, Deep Rock Oil Corp.; E. T. Moore, Dallas; T. A. O'Donnell, Los Angeles; W. S. S. Rodgers, Texas Co.; E. L. Smith, Dallas; and T. P. Thompson, Jr., Pennsylvania Grade Crude Oil Association.

A special group session, sponsored by the committee on automotive transportation, will be held Wednesday evening for the discussion of papers on motor truck tanks. Leo Huff, Pure Oil Co., will preside.

The first group session of the division of production, Thursday morning, will be sponsored by the committee on drilling and production practice, with B. B. Wescott, of Gulf Research and Development Co., presiding. Well-depth measurements, circumferential welding of casing, relationship between design and heat treatment, and comparison of steam and electricity for use in drilling oil wells will be subjects of discussion.

Dr. K. G. Mackenzie, Texas Co., will preside at the group session of the division of refining Thursday morning. Dr. Frederick D. Rossini, Institute research associate, National Bureau of Standards, will review a decade of cooperative research on the chemical constitution of petroleum conducted by the Institute and the bureau. R. T. Goodwin, of Shell Union Oil Corp., will discuss fuel oil production and use, with emphasis upon future supply. The influence of fuel characteristics upon high-speed diesel engine performance will be considered in a paper by G. A. Hope and W. S. Mount, of Socony-Vacuum Oil Co., Inc.

For the second group session of the division of production, Friday morning, with W. E. Gilbert, of Shell Oil Co., presiding, papers are being considered on factors controlling the bridging of sand on slot openings, gas-oil ratio control, and gas engine maintenance. Twenty members of the division of production general committee will be elected.

The division of refining's second group session, Friday morning, will discuss iso-octane, with J. B. Rather, of Socony-Vacuum Oil Co., Inc., presiding. The manufacture of motor fuels by the polymerization process will be considered in a paper by Gustav Egloff, J. C. Morrell, and E. F. Nelson, of Universal Oil Products Co. "The Catalytic Polymerization of Butylenes by Sulfuric Acid" will be discussed by E. H. McAllister, Shell Development Co. S. D. Heron, of Ethyl Gasoline Corp., will present a paper on experiences with aircraft operation on the new fuels of 100 and higher octane number. The division will elect 20 members of its general committee.

The Friday afternoon session of the division of production, with H. H. Power, University of Texas, presiding, will consider general production practice and research. Papers considered include emulsion prevention, well-performance terminology, and significant aspects of the research program under Research Project No. 4 dealing with origin and environment of source sediments of petroleum.

Developments in motor fuels will be reviewed at the closing session of the division of refining Friday afternoon. T. G. Delbridge, Atlantic Refining Co., will preside. Papers concerning the fuel systems of 1937 motor vehicles will be presented by T. W. Legatski and R. R. Couch, Phillips Petroleum Co., and concerning the effect of altitude on antiknock requirements by Neil MacCoull, K. L. Hollister, and R. C. Crone, Texas Co. Reports of road and laboratory knock tests will be read.

Lieb Transferred to New York: J. J. Conry to Succeed Him

C. H. Lieb, who has been president and active head of the Carter Oil Co. for several years, will be transferred to the New York headquarters of the Standard Oil Co. (New Jersey) about January 1. He will be connected with the production department of the parent company and take an active part in the management of subsidiary companies operating in most cases outside the United States. The producing units include companies operating in Mexico, Venezuela, Argentina and Rumania. He will continue as a director of the Carter company.

J. J. Conry, vice president, a pioneer in Mid-Continent operations, will succeed Mr. Lieb as president of Carter company. It is understood that F. W. Floyd, head of production operations and L. F. McCollum, head of the exploration department, will be elected vice presidents. Both are directors. Headquarters are in Tulsa.

J. J. CONRY

Colonel Thompson Urges Lower Allowables During the Winter

AUSTIN, Tex., Oct. 18.—Col. E. O. Thompson, railroad commissioner in a statement issued today, said:

"We cannot under the law allow oil to continue to build up aboveground storage and waste the valuable lighter ends. It can be produced later when and as needed. It is wiser to not overproduce, when overproduction means waste and loss for those who produce it and to the state. The consumer is best protected by allowing only enough oil to be produced to meet consumer demand.

"So far this year we have brought in a new producing oil well in Texas every 45 minutes of the day and night. A smaller allowable for each well is the only way the commission can keep production within the limits of market demand.

"I suppose the allowables will finally go automatically so low that drilling will cease to be profitable. Then and then only will the drilling slow down.

"It seems to me that this is a simple statement of fact and oil producers of the nation should be prepared for lower allowable production quotas throughout the months from now until spring. Operators can figure this out just as well as we can, if they really want to do it."

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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The Secretary Speaks

Secretary Ickes has established a unique reputation with the oil industry for boundless courage and unquestionable sincerity. He fearlessly poured vitriolic criticism upon the industry at the A.P.I. meeting in Dallas three years ago because he believed it was needed, but he was just as frank in recognizing the industry's accomplishments in his address before the I.P.A.A. at Houston last week.

No government official is more familiar with conditions in the petroleum industry than the secretary of the interior, who served as oil administrator from the fall of 1933 until May, 1935.

Speaking of the depression period during 1933 and 1934 Mr. Ickes said at Dallas: "Oil was being illegally produced, especially in East Texas. So great was the burden of oil upon the market that the foundations of the industry had crumbled."

He added that "the allocation of gasoline production under the code and the program for the purchase of distress gasoline each did its share of good, but the full measure of their accomplishment was not possible because of the hot gasoline from East Texas and because of the price wars east of the Rockies.

"I feel very strongly that East Texas must carry a heavy share of blame for the condition which weakened the wholesale gasoline market. How could it be otherwise" if "gasoline allegedly manufactured from hot oil could be purchased at a price materially less than that made from legally produced crude? Where we do not now have price wars being bitterly waged we have every reason to expect them momentarily to develop. The problem of solving these marketing difficulties is one for the industry itself."

Sooner or later, he said, "unless the industry is stabilized on a basis that will yield a fair profit and unless the wasteful and unbusinesslike competitive practices are corrected, the entire oil industry will have to pay the reckoning." That was the condition in November, 1934.

At Houston last week Mr. Ickes was able to say "Conditions in the oil industry are vastly different than when I spoke at Dallas. Crude oil prices have advanced to where nearly 90 per cent is sold at or above cost of production. During most of the past two and a half years refiners have been able to operate at a profit. Retail gasoline price wars have been infrequent and limited in extent. The additional cost of gasoline to the consumer has not been unduly burdensome. Oil field and refinery workers have found employment."

"This change," he said, "dates from the enactment of the Connally law early in 1935. Due to the prohibition against interstate shipment of oil produced in violation of state law, there has been no underpriced hot gasoline to provoke widespread retail price wars."

At Dallas Mr. Ickes warned the industry to correct its situation or "its management will be taken from you for good and all."

At Houston he said, "The burden of responsibility now rests primarily with the state authorities and with the oil industry, and I say candidly and with great cheerfulness that they have carried on the job better than could have been anticipated."

This was the same man, outspoken and honest, who gave the industry his opinion of it three years ago. Then he warned that "after all, there is a public interest to safeguard in this matter of oil." Today, far from the public interest having been jeopardized, he finds "the industry has recovered" and "the additional cost of gasoline to the consumer has not been unduly burdensome."

Is this not an answer to the attempt of another member of the cabinet at Madison to brand a substantial part of the oil industry as enemies of the people?

Petroleum Developments This Year in the Illinois Basin

By ALFRED H. BELL
Geologist and Head of Oil and Gas Division,
Illinois State Geological Survey*

In the past, one article in the course of a year on oil and gas developments in Illinois has usually been sufficient. This year, however, developments during the first nine months are without parallel in importance to the state since the discovery of the Southeastern Illinois field in 1904. Therefore, a review of developments seems fitting at this time. Certainly five and possibly seven or eight new oil fields have been discovered this year. The doubt concerning the number arises from the fact that certain wells which found oil in commercial quantity may represent either separate productive areas or extensions of known fields. The number of fields, however, is less significant than is their location far from previous fields and the consequent large territory which is outlined for early testing.

Events leading up to this year's discoveries began several years ago. Most important, perhaps, was the discovery, in 1928, of the Mount Pleasant field in the central part of the Michigan Basin, a large geosyncline similar in many respects to the Illinois Basin. Previously, such basins had been considered unfavorable to the occurrence of oil because it was thought that any oil formerly present had migrated to the margins. The presence of structural irregularities in the central part of the Michigan Basin was demonstrated prior to the discovery of oil by subsurface data obtained from brine wells. At that time subsurface data in the Illinois Basin were insufficient to reveal the details of the subsurface structure. The probability that unknown local structures, some of them favorable to the occurrence of oil and gas, were present in the Illinois Basin was recognized by the Survey and an article was prepared and presented before the annual meeting of the Illinois Academy of Science, May, 1930.[1] This report recommended that the central basin area be explored for oil.

A map, based on geologic data accumulated by the State Geological Survey for many years, prepared by the writer in 1930, divided the state into areas according to relative probability of finding new oil fields. Although this map was not printed at the time, it was exhibited in Chicago by the Western Society of Engineers in September, 1930, along with other material illustrating the work of the State Geological Survey. A copy of this map, to which have been added recent discoveries, is shown in Figure 1. It will be noted that all of these have been within area No. 1, which is designated as having "best possibilities" in the earlier edition.

Actual demonstration of the presence of structural irregularities in the Illinois Basin has been made by both geological and geophysical methods. Studies of Pennsylvanian stratigraphy initiated in 1927 under the supervision of Dr. J. M. Weller of the Survey staff made possible correlations over wide areas of the state with a precision hitherto believed impossible. These studies were carried into the basin area and demonstrated the presence of structures favorable to the occurrence of oil. The results of these studies in one area were published March 1, 1936.[2] The reflection seismograph method of exploration was started in Illinois by the Pure Oil Co. in the fall of 1935. Geophysical investigations by this company resulted in the discovery of an important structure in the central part of the basin. The seismograph method has since been adopted on a large scale by oil companies in the area and at present about 16 parties are operating. It is noteworthy that the first three wells located by the seismograph in Illinois all discovered oil.

The discovery wells of the first three fields of 1937 were already being drilled in late 1936. Two of these were drilled by cable tools and one by rotary. This was the first rotary test for oil to be drilled in Illinois. Table 1 shows the discovery wells of new fields in chronological order.

Well data from the basin area are beginning to reveal something of the subsurface conditions governing accumulation of the oil. It is already evident that anticlinal structure is not the only factor of importance and in some cases it may not even be essential. The principal producing horizon in these fields is the "McClosky sand," defined as any oolitic beds occurring in the Fredonia limestone member of the Ste. Genevieve formation. The typical McClosky in all of the best producing wells so far obtained is a light gray pure limestone made up of exceedingly well sorted oolites. There has been very little deposition of interstitial material, so that porosity may, in some cases, approach the theoretical maximum for closely packed uniform spheres. The thickness of the pay is variable within short distances, as well as its position in the stratigraphic section. Because of the lenticular character of the reservoirs, production may be looked for well down on the flanks of structures, as well as dry holes on the high parts, in some cases offsetting good producers. It is planned that further discussion of these conditions, with cross sections showing specific locations, will be included in an early publication of the Survey.

A sufficient number of datum points on the contact between the overlying Chester series and the top of the Lower Mississippian series are now available to permit making a generalized regional contour map of the basin on this horizon. Maps of the basin contoured on the base of the Pennsylvanian have been published previously. Figure 2 is the last one of these maps published. The contour interval used is 100 feet. This map is dated May, 1937, and is subject to revision in accordance with well data received since that time. Figure 3 is a map of the basin contoured on the top of the Lower Mississippian series, using a contour interval of 200 feet. The difference between the elevations shown in Figures 2 and 3 for any given point is the thickness of the Chester series at that point. It may be noted in general that the Chester series thickens southward across the basin.

The LaSalle anticline upon which the

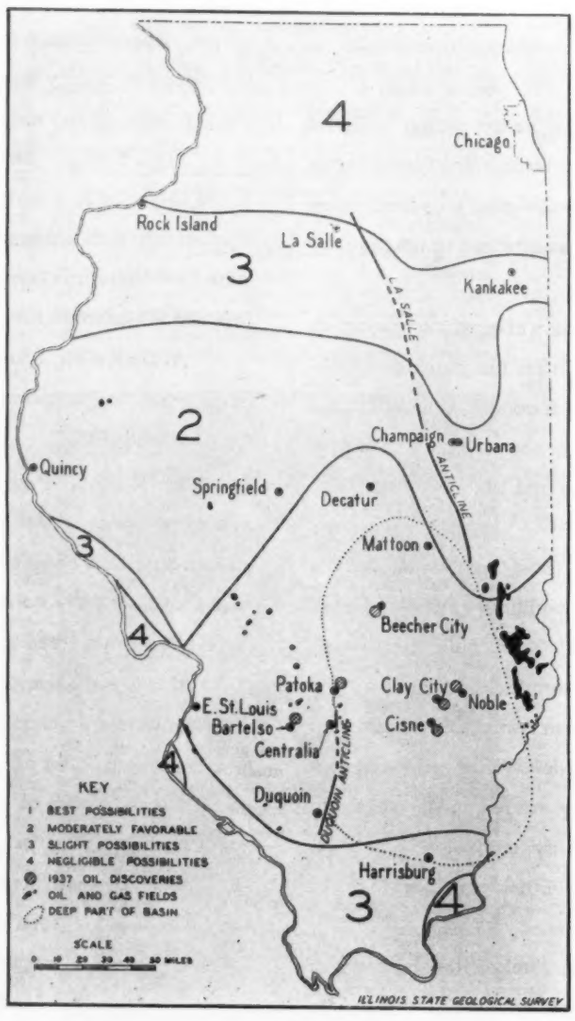
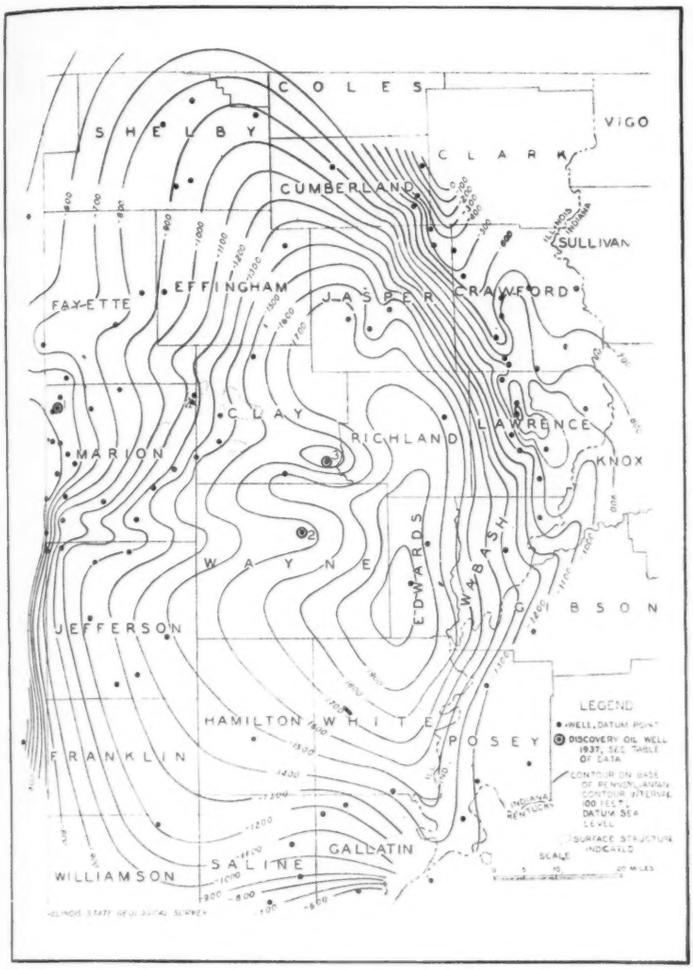


Fig. 1—Trends favorable to finding oil in the Illinois Basin

*Presented at Fifth Annual Illinois Mineral Industries Conference at Urbana, Ill.



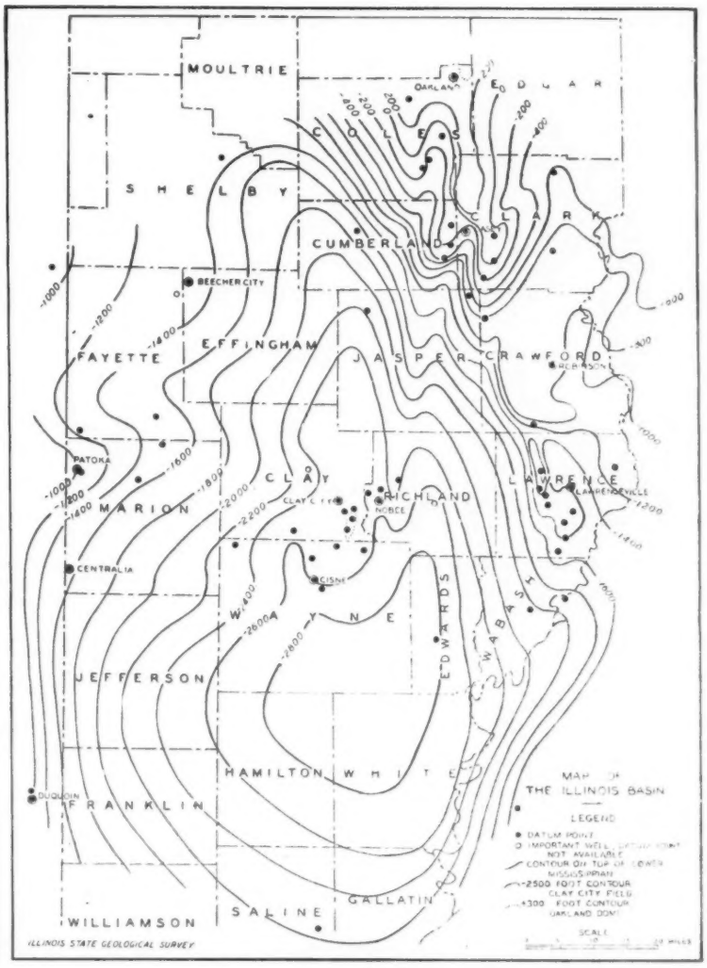


Fig. 2—Subsurface contour map of central Illinois Basin on base of Pennsylvanian. Fig. 3—Contour map of top of Lower Mississippian

Southeastern Illinois field is located in Clark, Cumberland, Crawford and Lawrence counties is seen to be a discontinuous feature and is much broken up with saddles, flats and cross folds. These cross folds were emphasized by Mylius in Bulletin 54 of the Survey. One of these cross folds runs NNE-SW through the Westfield and Siggins pools. Figure 3 shows this fold to continue southward across Jasper County into Richland, Clay and Wayne. It appears to be a structure of comparable importance in the accumulation of oil with the LaSalle anticline itself.

Data are as yet insufficient to make a reliable estimate of ultimate per acre yield in the new fields. The best indication now available is a comparison of the thickness and character of the reservoir rock with that of the same strata in the old producing field. Thus, the McClosky oolites in the new basin fields are more uniform, and well sorted, than are those in the Lawrence County field, judging from the few samples available from the old field. The average thickness of "pay" is probably greater in the new fields. Therefore, an ultimate yield per acre at least as great as in the old field may be expected, other things being equal.

In the largest area of continuous McClosky production, in Dennison Township, Lawrence County, 23,270,168 bbls. of oil were produced in 23 years (1908-1931) from an area of 1,455 acres, or a yield of 16,000 bbls. per acre. The wells were open in the Kirkwood and Tracey sands as well as the McClosky and separate figures on the recovery of each sand are not available. In this area, however, it is known that the McClosky was by far the most productive horizon and probably has yielded an average of 12,000 bbls. per acre out of the 16,000 bbls. per acre total. Some individual leases yield as much as 25,000 bbls. per acre mostly from the McClosky. In view of this record, ultimate yields of 8,000 to 10,000 bbls. per acre from the new basin fields from the McClosky are not improbable.

At the end of September, 1937, there were approximately 111 oil and gas drilling operations in Illinois, almost a threefold increase since the beginning of the year. From January to September 30, approximately 238 wells were completed in the state, of which 153 were oil producers.

The number of wells in the new fields are shown in Table 2.

Production in the new fields alone is considerably greater than the previous total production of the state. This is illustrated in Table 3.

It will be noted that the production for Sep-

TABLE 2—WELLS IN THE NEW FIELDS, SEPTEMBER 28, 1937

	Producers	Dry holes*	Drlg.	Rig
Noble field	7	2	8	1
Clay City	35	3	11	4
Cisne	3	1	0	0
Total Central Basin fields	45	6	19	5
Patoka	56	13	5	20
Bartelso	16	3	1	1
Total	117	22	25	26

*Within one-fourth mile of production.

TABLE 3—PRODUCTION OF CRUDE OIL IN ILLINOIS BY MONTHS FOR 1937

(Barrels)

January	368,000
February	343,000
March	410,000
April	386,000
May	416,000
June	463,000
July	530,000
August	*667,000
September	*818,000
Total	4,401,000

*August and September estimated by Illinois Geological Survey.

TABLE 1—DISCOVERY WELLS IN NEW SOUTHERN ILLINOIS OIL FIELDS

Field—	County	Company	Date completed	Farm	Well No.	Location S.-T.-R.	Total depth (feet)	Producing formation— Depth (feet)	Name
Bartelso	Clinton	Bartelso Oil & Gas Co.	Apr. 20, 1936	Trame	1	8-1n-3w	1,037	1,027	Carlyle
Patoka	Marion	Adams Oil & Gas Co.	Jan. 27, 1937	Merryman	1	21-4n-1e	1,418	1,391	Benoist
Clay City	Clay	Pure Oil Co.	Feb. 26, 1937	Weiler	1	33-3n-8e	2,613	2,608	Cypress
Clay City	Clay	Pure Oil Co.	May 15, 1937	B. Travis	1	33-3n-8e	2,960	2,950	McClosky
Cisne	Wayne	Pure Oil Co.	March 4, 1937	Bradley	1	26-1n-7e	2,987	2,982	Ste. Genevieve
Noble	Richland	Ohio Oil Co.	Aug. 2, 1937	Arbuthnot	1	8-3n-9e	2,990	2,898	McClosky
Noble	Richland	Mammoth Oil Ref. Co.	Sept. 2, 1937	Heitz	1	34-4n-9e	3,009	2,972	McClosky
Beecher City	Fayette	Carter Oil Co.	Sept., 1937	Miller	1	12-8n-3e	1,607	1,601	Benoist

tember is estimated to be well over twice that for January. Further increases in production in the known fields are to be expected during the remainder of the year, and it seems probable that additional fields will be discovered.

The Survey does not as yet have anything like complete data on the wells so far drilled. Because of the importance to the industry of assembling, correlating and thoroughly studying these data, so that conclusions of both scientific and practical value may be reached, we earnestly request the cooperation of all in filing the drillers' logs, and in making available the well cuttings and cores to the Survey for study and preservation.

Bibliography

1. Bell, A. H., "The Relation of Geology to the Development of the Petroleum Industry in Illinois," Trans. Ill. Acad. Sci., Vol. 23, No. 3, March, 1931, pp. 367-70.
2. Weller, J. Marvin, and Bell, Alfred H., "Geology and Oil and Gas Possibilities of Parts of Marion and Clay Counties with Discussion of the Central Portion of the Illinois Basin," Illinois State Geological Survey Report of Investigations No. 40, 1936.

Aid the Small Refinery

(Continued from Page 24)

the first witness, Lanzer said his company purchased less gasoline from small independent refiners in 1935 than in 1934. The defendants' alleged conspiracy to control the market is stated in the indictment to have started early in 1935. His company bought 95 carloads on the spot market in East Texas during 1934, Lanzer said, and only 37 carloads in 1935.

Testifying in support of the government's charges against the three publications, Lanzer asserted the prices he paid on the spot market in 1935 were a half cent to five-eighths of a cent a gallon below Journal of Commerce quotations.

Questioning of the witness developed an involved argument over his comparison of prices at which he purchased and Journal of Commerce published quotations. He said he bought gasoline of 65-octane rating at a range of five-eighths of a cent below the journal's low published price for "regular" gasoline of 63 to 70-octane rating. He affirmed that the trade generally understands "regular" gasoline to be a product with a rating of 68 to 70, but claimed nevertheless that it is also understood the journal's caption of 63 to 70 (regular) also referred to "regular" gasoline.

Gen. Samuel T. Lawton, counsel for the Journal of Commerce, objected to the testimony, insisting the journal has a right to show what its bracket meant and that it did not mean that 63-70 gasoline was "regular."

Lanzer admitted on cross-examination that as a broker he has to buy at a price below that paid by the jobber to do business. He also affirmed that the Globe companies are dependent upon jobbers as outlets for their product and that his company handles a large portion of their output. He said he did not know that some of the companies from which he had purchased in 1934 were not shipping gasoline out of Texas in 1935 after the Connally "hot" oil act became effective.

Government counsel was "surprised" when Lanzer refused to testify that the alleged buying program of the majors was the major factor in the stabilized high price level of 1935.

Lanzer had stated that the advance in March of that year was attributable to a variety of factors, including the Connally bill which checked the flow of "hot" oil from Texas, the seasonal influence, the general rise in prices of all commodities and, he said, "increased purchases by various interests."

Asked what he meant by "various interests," Lanzer said jobbers had begun to purchase directly on the spot market and "from data in his possession" he understood "the majors were buying also."

A defense motion to strike his testimony as "pure hearsay" was denied, but government counsel was still dissatisfied with his answer, and continued to probe into his recollections of the buying program. He was not familiar with the program, "because we were not involved in it," Lanzer insisted, but he understood a buying program was in operation during the NRA code and "if I recall correctly," the code was still in effect.

Counsellor John Henry Lewin then sought to compare his testimony with that given before the grand jury in May, 1936, when he referred to a buying program "down there" by the majors without mentioning other factors.

Defense attorneys objected to introduction of the grand jury testimony, accusing the government of attempting to impeach its own witness, but the court permitted the testimony to be read on the ground "the witness now appears hostile." He observed that Lanzer's grand jury testimony did not differ materially from that given in the trial.

He had admitted, after testifying that he bought gasoline on the spot market during 1935 at prices consistently under Journal of Commerce low quotations, that a differential was employed in relation to his buying and selling price for third-grade gasoline, but he declared that Keith Fanshier, petroleum editor of the journal, had not called him to learn what prices he paid on the spot market. He admitted to defense counsel, however, that the 37 cars he purchased in 1935 were all bought within the space of a week and there was no occasion up to that time for Fanshier to call him. He admitted further he did not call Fanshier to inform him of his purchases.

In the light of a defense opening charge that a group of jobbers who trafficked in illegally produced and low-price gasoline prior to enactment of the Connally act was largely responsible for the complaints that resulted in the prosecution, government attorneys asked each of the jobbers and brokers who testified last week if they ever had bought or sold any "hot" oil, and they invariably replied "not to my knowledge."

Lanzer told the court, when Judge Stone asked if he "knew anything about 'hot' oil," that he had never handled any of it, but he declared he didn't have the same impression of "hot" gasoline as many people seemed to entertain. Under the tender boards late in 1934 illegally produced gasoline could not be shipped out of the producing states, so he "can't see," he pointed out, "how any 'hot' gasoline could get into Wisconsin."

Jobbers testified one after another of interviews with officers and salesmen of various major companies in unsuccessful efforts to obtain better margins, and two, A. C. Breuch of Madison, Wis., and H. E. Miller, Festus, Mo., told of direct conversations with E. B. Reeser, Tulsa, president of Barnsdall Refining Corp.

Breuch testified Reeser told him "we know you can't make money on a 5½-cent margin," but added "we can't do anything about it. If better contracts are written we shall be glad to write you another contract."

In this connection defense counsel objected to the government's references to Reeser and other indicted executives as "conspirators," and the court sustained the objection, directing the prosecution to use the term "defendants."

Miller, who said that under conditions in 1935 and 1936, his actual margin at times was as low as 1⅞ cents, described trips to Oklahoma to seek a better contract. The Barnsdall vice president in charge of marketing told him nothing could be done, Miller declared, and added the observation that he "didn't see much future hope for the jobber in business." This official said the only relief he could suggest would be to "lease your plant to us," the witness continued, but he wasn't interested. "It would put me right back where I was 27 years ago," he explained.

Later he said he talked to Mr. Reeser, Miller continued, who lamented "the sad state of affairs" but when he asked for a "live-and-let-live" margin, Mr. Reeser told him "I can't change that contract one iota."

He talked to representatives of the Socony-Vacuum, Continental, Mid-Continent, Tide Water and other companies, Miller testified, but could obtain no better offer.

Most of the jobbers who testified pointed out they executed new contracts at the solicitation of their supplier during 1935 when the "Iowa plan," instituted by Standard Oil of Indiana after passage of the Iowa chain store tax, became effective, and tankcar sale prices rather than service station posted prices became the contract basis.

The first government objection arose when Colonel Donovan sought to show that all commodity prices were down in 1933, and when the court temporarily sustained the prosecution, Donovan protested that "it would be unfair to these defendants and an absolute injustice if we are not permitted to show the depressed conditions of that period."

When Judge Stone opened the way to questions on specific matters within Breuch's knowledge, Donovan obtained his affirmation that gasoline during 1933 and 1934 was the cheapest he had known in his business experience, that refineries were closing, price wars were common, and stabilization meetings were being held in many localities.

Breuch was followed by Harry Fee, jobber from Waterloo, Iowa, who told of unsuccessful attempts to obtain a better contract from the Socony-Vacuum company. When he asked Ray Mering of the White Eagle division for a better margin, he said Mering told him that he "didn't see how we could change now," but if a better contract became available later his company would be among the first to grant it to jobbers.

"Available from whom?" asked Government Attorney Lewin.

"He didn't say," replied Fee, and Judge Stone forbade Lewin to indulge in the suggestion there would be a change in contracts "if some other companies agreed."

Some of the jobbers testified that in case of a downward trend in the market they could offset losses, but the trend in 1935 was upward and they had to assume the difference when the retail price failed to go up with the tankcar price.

Oscar L. Peterson, Evanston, Ill., who declared his company, he believes, is the largest independent oil company in his state, with a volume of 15,000,000 gallons sold annually, said he had obtained his gasoline since December, 1934, from the Socony-Vacuum company on a 5½-cent split margin contract which, he declared, was "substantially like" those previously described by other jobbers. Peterson said he told E. C. Steffey of Empire Oil & Refining Co. in the late summer of 1935, he was unable to make a living under his Socony-Vacuum contract, and Steffey informed him "our contract is no different."

A sharp note crept into the modulated and persuasive tones of Colonel Donovan's questioning for the first time during the trial when William J. O'Brien, Superior, Wis., jobber, took the stand Friday. O'Brien had told of his difficulties in making a profit on his remaining 2-cent margin after paying the dealer 3½ cents, and meeting the expense of tax collections, insurance, bond, shrinkage and other overhead costs.

Throughout, the government had been pointing to the uniformity of the defendant companies' contracts. Donovan sought, through Miller, to show the 3½-cent margin allowed to dealers by jobbers is just as uniform, though not necessarily by agreement.

"It's right in our contract," O'Brien insisted.

"Show me where there is anything in your contract that says you must allow your dealer 3½ cents," the colonel shouted.

O'Brien finally admitted there was no such provision, but declared it was "uniform in the trade" not only among jobbers but among major companies marketing through their own outlets.

Three other variations to the story of uniformity were the statements of M. H. Teige, Stoughton, Wis., jobber; G. H. Falder, Rock Island, Ill., and J. H. Crowley, Beloit, Wis.

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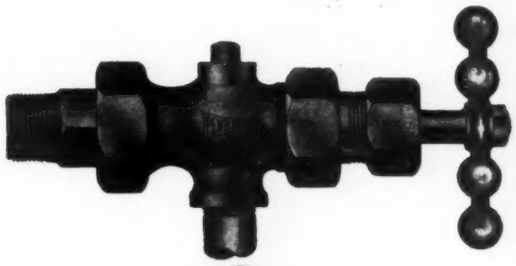

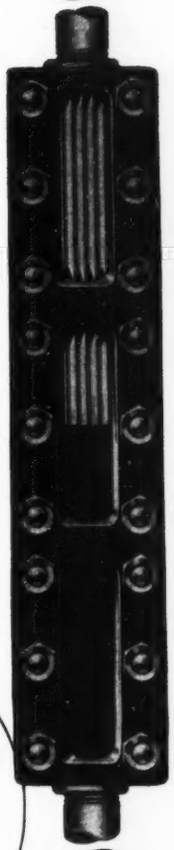

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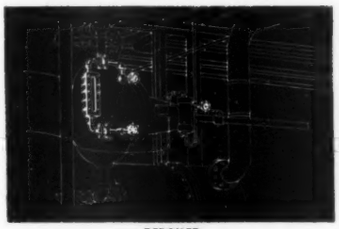

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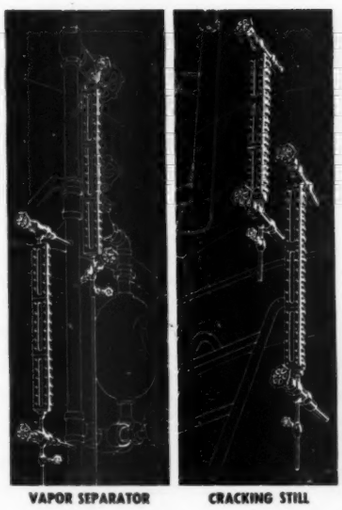

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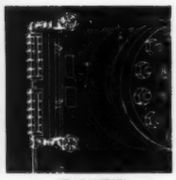

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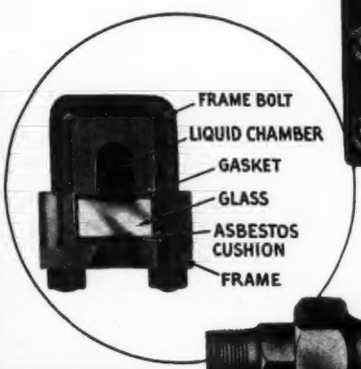

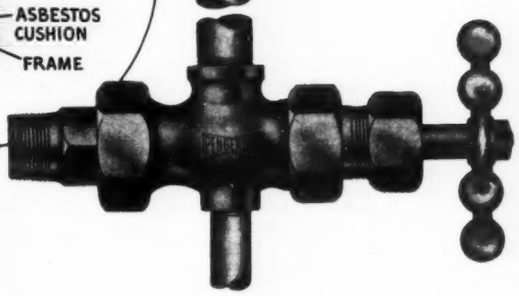

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Continental Oil Establishes New Record in Safety Work

KANSAS CITY, Mo.—Continental Oil Co. has established a new high for safety in industry, it was indicated when the National Safety Council, at its twenty-sixth annual congress here, presented bronze plaques to that company as first awards for the best 1936 safety records in all three branches of the petroleum industry —production, manufacturing and marketing.

This is the first time any major company has won all three awards, according to W. H. Cameron, managing director of the National Safety Council. It is the

Joe S. Boylan, safety director, Continental Oil Co.

fourth consecutive year Continental has received the first award for safety in its production department, and the third straight year it has taken first in marketing.

The awards were accepted by Joe S. Boylan, who has been safety director of Continental Oil Co. for 10 years.

Independent Marketers Denounce Proration and Connally Law

CHICAGO.—Roy R. Fisher, president of the Argo Oil Corp., Detroit, Mich., was chosen president of the National Oil Marketers Association, which closed its three-day convention here Thursday. Earl White, Delta Oil Co., Petersburg, Va., was elected vice president, and Paul E. Hadlick was reelected secretary-treasurer. All directors were reelected except S. K. Smith, vice president of the Smith Oil & Refining Co., Rockford, Ill., and W. M. Jacobson, president of the H. K. Stahl Co., St. Paul, Minn. W. J. Kunz, of the Kunz Oil Co., Minneapolis, Minn., was chosen to succeed Mr. Jacobson.

Resolutions adopted demand repeal of the Connally law, discontinuance of Bureau of Mines estimates of crude requirements and withdrawal of congressional approval of the interstate oil compact; declared the association would not join in any movement to establish an oil code which failed to afford proper protection to the independent marketer; asked the Interstate Commerce Commission to make a study of railroad freight-rate weights for gasoline; condemned the tax on undistributed profits. They urged passage of the Biermann-Gillette bill, designed to keep major oil companies out of the marketing business, and the Daly pipe line divorcement bill; commended the department of justice for its investigation into marketing practices; urged repeal of duties on oil imports as a step in the direction of conservation of this country's oil reserves.

"Crude oil should not be withdrawn from the ground until there is a buyer who actually uses it and consumes it within a reasonable time," asserted Clarence Shock, chairman of the Independent Petroleum Jobbers Association of Pennsylvania. Mr. Shock denounced proration as a device which operated chiefly to the advantage of the major companies. Conservation as practiced under present regulations he pictured as a stalking-horse for oil monopoly. "True conservation," he said, "is possible under stricter federal regulation fixing a uniform price of crude oil to all buyers and taxing the excess profits of producers of crude oil so that not over a limited return could be earned on invested capital, as is done with utilities. The government would take over all flush fields and operate them."

M. B. Whiting, retiring president of the association, protested against "paying the high price for crude that we do for salvation of our stripper wells."

Representative Fred Biermann, of Iowa, author of the bill in congress to divorce major oil companies from marketing, said: "Congress did not intend that the Connally act should save the producers and refiners at the expense of the independent marketers."

Rig Builders Association Elect at Tulsa Meeting

At the annual meeting of the National Rig Builders Association in Tulsa October 14, the following officers were elected:

F. M. Mahan, of Mahan, McCarty & Besse, Inc., Tulsa, president; Alexander Rader, Wichita, vice president for Kansas; George Bates, Hobbs, vice president for New Mexico; Robert Wright, Midland, vice president for West Texas; M. J. Brown, Houston, vice president for South Texas, and Ed Zagst, Vivian, vice president for Louisiana. R. J. Wertzberger, of Wertzberger Derrick Co., Tulsa, is secretary-treasurer.

Two new directors at large were named: E. D. Kelly, Fort Worth, director for Texas, and Clay Plymate, Augusta, director for Kansas.

Companies Secure Injunction On Louisiana Back Taxes

NEW ORLEANS, La.—Three oil companies have obtained from Federal District Judge Wayne G. Borah, a preliminary injunction restraining the state of Louisiana from collecting $500,000 in back taxes.

Hugh M. Wilkinson, special attorney for the state, said he would appeal the order to the U. S. Fifth Circuit Court of Appeals.

The taxes are based on 3 per cent reductions the oil companies have made for "handling losses" on all gasoline handled in the state since March, 1929. Although the state maintains the deductions were illegal, the companies contend the deductions were permitted and accepted as legal by the state until several months ago. The three companies are Magnolia Oil Co., Texas Co. and Shell Petroleum Corp.

Shell Will Intervene in Case Involving Freight Charges

WASHINGTON, D. C.—The Interstate Commerce Commission has authorized Shell Petroleum Corp., St. Louis, Mo., to intervene in complaints filed by the Anderson-Prichard Oil Corp. against the Abilene and Southern Railway and by Midstate Petroleum Co. against the Alton Railroad.

The Anderson-Prichard complaint involves rates on petroleum and products shipped from Kansas, Louisiana, Oklahoma and Texas to Illinois, Indiana, Missouri, Iowa, Nebraska, Wisconsin, Minnesota, North Dakota, South Dakota and Michigan.

The Midstate complaint involves rates on products shipped between Illinois, Indiana and Wisconsin and from refineries in the Chicago district to Wisconsin.

Magnetic Storms

TUCSON, Ariz.—U. S. Coast and Geodetic Survey report two magnetic storms the first started at 11 p.m. October 6 and ended 2 p.m. October 8, and was followed by another storm which began at 1 a.m. October 9 and ended at 8 a.m. October 13. All Central Standard Time.

THE MARKETS*

CRUDE OIL: *Apparent certainty that state proration bodies and producers will agree to further curtailment in crude oil production in November in line with recommendation of Bureau of Mines is a favorable development in all markets. Increases in crude stocks in recent weeks have been largely offset with later decreases so that present inventories are about the same as they were three months ago. In California the El Segundo and Wilmington fields have been placed on gravity posted basis.*

REFINERY: *Mid-Continent tankcar market for regular grade gasoline reduced one-eighth cent, the first decline since late June. In New Jersey gasoline tankcar prices reduced one-fourth cent. Residual fuels easier. Heavy movement of burner distillates and kerosene.*

TANK-WAGON AND SERVICE STATION: *Scattered reductions in southeastern gasoline dealer and tank-wagon prices.*

FINANCIAL: *Common oil stocks at new low for the year. Average of 30 representative stocks for week ending October 16: High, 32.33; low, 29.19; close, 29.82. Week ending October 9: High, 34.54; low, 31.62; close 32.40.*

**Details in market section.*

OBITUARIES

T. M. JONES, 60, Palacios, Tex., oil man, was killed near Huntsville in a traffic crash. He formerly was production superintendent for the Pure Oil Co. at Mexia.

CHARLES M. ROOT, 75, Eastland, Tex., oil operator, who started at the age of 12 in the Pennsylvania fields, died in a hospital in Evansville, Ind., last week.

EDWARD L. STEVENS, 43, manager of sales of commercial wire rope for the Union Wire Rope Corp., Kansas City, Mo., died suddenly recently. Burial was in Tulsa, where Mr. Stevens for years was associated with the Republic Supply Co.

LAWRENCE P. LESTER, 69, one of the pioneer rotary drillers in the Southwest, South America and Russia, died in an Oklahoma City hospital October 12. He had been employed by the Reed Roller Bit Co. for the past five years.

R. A. BEARMAN, 59, oil operator of Cisco, Tex., died October 12. He had producing properties in Callahan and Shackelford counties, and recently drilled a test in Cisco townsite.

EDWARD W. BISETT, 40, superintendent of production for Skelly Oil Co. in the Texas Panhandle district, died in Pampa, Tex., October 9, after an operation for appendicitis. Mrs. Bisett and four children survive. Burial was in Bradford, Pa., his birthplace.

RUPERT JEROME HEALD, 80, Tulsa independent oil producer and contractor, died October 16 at Chambersburg, Pa. Born in Clarion County, Pennsylvania, he began in the oil business about 1870. He was connected with several major companies for a number of years and followed oil development into Ohio and Indiana. He came to Oklahoma in 1905 as manager of the Eastern Oil Co., resigning in 1912 to become an independent producer.

DANIEL A. CORCORAN, 45, who built the first refinery in the Oklahoma City field, died at Oklahoma City, October 14. Former sales manager of American Refining Co. of Ardmore, he became vice president in charge of refinery sales when the company was consolidated with the Wirt Franklin Petroleum Corp. Eight years ago he organized the Black Gold Refinery Co. which he sold two years ago and built a reclamation plant.

Ickes Commends Industry for What It Has Accomplished

By HAROLD L. ICKES
Secretary of the Interior

Conditions in the oil industry today are vastly different than when I spoke at Dallas in November, 1934. At that time the Federal Tender Board in the East Texas field had been operating for less than a month and the industry was skeptical of its ability to stop the interstate movement of hot oil. Crude oil prices were trembling from the threat of a sharp cut a month earlier, a cut which would have been justified if the returns from the sale of refinery products alone had been considered. Refinery gasoline prices had risen from the unprofitable depths of the preceding summer, but there was no assurance they would continue at profitable levels. Retail gasoline markets barely had started to recover from the widespread price wars which had reached their peak just as the Federal Tender Board was being established. The petroleum code had not been wholly effective and the industry was disposed to treat it and the orders made under it lightly.

Today, in Houston, I am still the friend of the oil industry as I have been since I made my stand at Dallas. However, I am glad to say I am here with a much lighter heart than I carried on that other occasion. The burden of responsibility has, to a large measure, been shifted to other shoulders than mine. It now rests primarily with the state authorities and with the oil industry, and I say candidly and with great cheerfulness that they have carried on the job better than could have been anticipated.

Since my interest in oil last brought me to Texas, all-time production records have been broken, over and over again. Crude oil prices have advanced to a level where nearly 90 per cent of it is sold at or above its cost of production. During most of the past 2½ years, refiners have been able to operate at a profit. Retail gasoline price wars have been infrequent and limited in extent. The additional cost of gasoline to the consumer has not been unduly burdensome. Oil field and refinery workers have found employment. As a business, the oil industry has recovered from the depressing conditions of 1933 and 1934 to such an extent that the emergency stabilization measures which were presented for consideration to the seventy-fourth congress no longer press for attention.

This change dates from the enactment of the Connally law early in 1935. This act of congress serves more as a catalyst to blend other forces than as a direct force in itself. The principal force has been an unprecedented and almost unbelievable increase in the demand for petroleum products. Crude oil production has been regulated by state commissions. Refinery operations have been subjected to the effective control growing out of the fact that nearly all refineries have been operating at the practical limit of their capacities. Due to the support of the federal government in enforcing the prohibition against the interstate shipment of oil produced in violation of state laws, there has been no under-priced hot gasoline to provoke widespread retail price wars. On account of such elements of stability to balance operations, the period since the enactment of the Connally law has had no counterpart in the history of the oil industry.

Helpful as it has been to the oil industry, the continuous and ever-mounting demand for petroleum products only emphasizes, in my mind, the need for an increasing interest in conservation and the desirability of a serious study of the adequacy of the oil reserves of the nation, as measured by our present and prospective future requirements and taking into consideration also the oil reserves of the rest of the world.

To me, conservation means the efficient development and prudent use of our natural resources without waste or needless destruction, having in mind always that a proper balance must be struck and maintained between our own needs and those of future generations of Americans.

Oil has built cities and by reducing time of travel has drawn our communities together. Oil provides work in many directions, increases bank deposits, and affords an outlet for advertising. Oil is in the air fueling and lubricating airplanes and at the moment, through the courtesy of the Columbia Broadcasting System, it is on the air. Oil is underground giving power to tunnelling and excavating machines, and on the high seas, rivers, lakes and canals it propels carriers of cargoes. Oil builds ships to carry its own products and terminals through which to load them.

Oil raises temperatures in frost-threatened orchards and lowers temperatures in the refrigerator trucks and cars which transport crops to markets. Oil stifles mosquitoes in marshes and destroys insects in the home. In case of illness or accident, it hastens the arrival of the physician. Oil constructs schools and maintains them through taxes and royalties. Oil builds city streets and rural roads and provides the fuel for the motor vehicles which use them. Oil provides an income, through royalties and rentals, to farmers and other landowners.

Oil demands steel products for its wells, pipe lines and refineries, while it supplies fuel for steel mill furnaces. It brings freight to railroads while providing them with fuel and lubricants. Oil gives power to tractors which pull plows and harrows and later it is the power which harvests the crop and transports it to markets. Oil brings light to our rural homes and heat and transportation to those who live and work in our cities.

Oil is interdependently interwoven in the complex pattern of business, industry and society. It has come to be an essential in all walks of life, at every crossroad, and in every hamlet, village, town, city or metropolis. Oil is not a luxury, but an each-and-every-day necessity to the personal welfare of all the people of the United States.

I trust sincerely that the day will never return when, as a people, we must again face the horrid visage of war. For one I would prefer to forfeit ephemeral and transitory commercial profits rather than pour out American blood in a cataclysm in which we would lose even if apparently we were returned the victors. The inevitable outcome of war would be national bankruptcy and the shattering of our civilization. The World War amply proved that to the victor belonged the spoiled—a spoiled national economy, a spoiled morale, a spoiled idealism.

But despite a desire for peace which amounts almost to an obsession, nothwithstanding our feeling of good will and friendship for all other peaceful peoples who, like us, prefer the paths of peace, we should not close our eyes to the fact that a sound policy of prepardness is only common sense. And no plan of preparedness would be worthy of the name that did not assure us of an adequate oil supply for purposes of national defense. At the same time, I am convinced our people have a sufficiently deep regard for humanity, regardless of race, color or creed, that they will not approve entering the market places of the world to sell our oil supplies for uses that will multiply the miseries and destruction that we know as war. With commendation, I invite your attention to the statement of a member of the Texas Railroad Commission who, with a background of service with the American Expeditionary Forces, said: "Texas does not

Mr. Ickes' Views

During most of the past two and one-half years retail gasoline price wars have been infrequent and limited in extent. The additional cost of gasoline to the consumer has not been unduly burdensome. Oil field and refinery workers have found employment. This change dates from the enactment of the Connally law early in 1935.

Due to the support of the federal government in enforcing the prohibition against the interstate shipment of oil produced in violation of state laws, there has been no under-priced hot gasoline to provoke widespread retail price cutting.

The continuous and ever-mounting demand for petroleum products only emphasizes, in my mind, the need for an increasing interest in conservation.

wish to be made richer through the sale of oil to make war and misery."

Many are of the opinion that the American oil industry, simply because it has been able to meet increasing demands during the 78 years of its history, will be able to do so until scientific achievements have outmoded the use of oil.

Although the search for oil has been more intensive in the United States than in foreign countries generally, the most favorable estimates credit the United States with less than half of the oil reserves of the world. We use in this country, principally from our own supply, about two-thirds of the oil consumed in the world. Simple arithmetic applied to this formula will reveal that we, in the United States, are using up our oil reserves at a faster rate than the rest of the world. Unless this trend is checked we will be faced with an oil shortage here in advance of a corresponding shortage abroad.

If the calculation is as simple as this, it might be assumed that the answer is correspondingly simple. Unfortunately, that is not true. The use of petroleum products usually is not prescribed or limited except by comparison with the cost of substitutes. Foreign oils should not be permitted to enter our markets without the exercise of some judgment as to quantities and qualities. It is even suggested there might be an exercise of judgment with respect to the quantities and qualities of petroleum products that are sold for export. The production of oil should not be limited arbitrarily if there is a reasonable demand for its products which can be supplied without unduly drawing on our reserves and if it can be produced without waste.

The present disparity in oil resources between our country and the rest of the world can be corrected to some extent. American research, engineering and management can make certain that our remaining oil reserves will be developed more efficiently and with a higher recovery factor than is common in other oil-producing countries. Supplementing this, serious consideration can be given to the quantity and character of foreign oils which might be permitted to augment our domestic supply without affecting adversely our own oil industry.

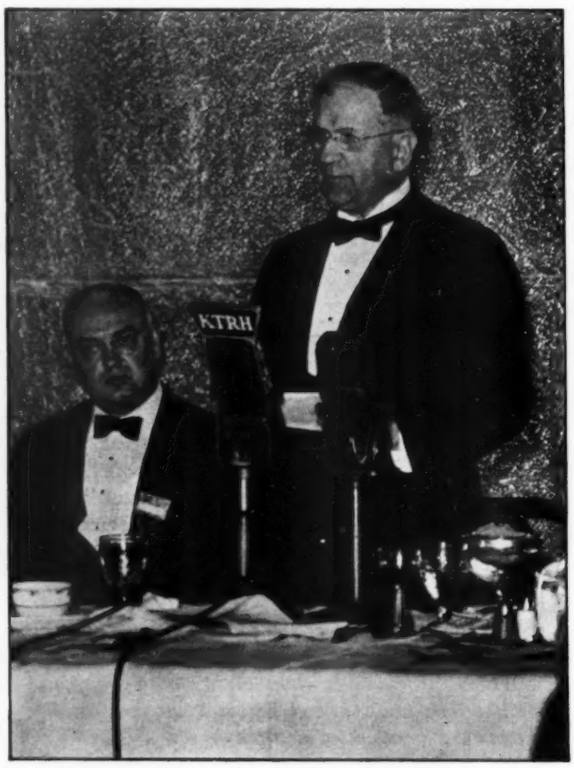
The states and the oil industry have to their credit many accomplishments which fit the pattern of this conservation policy. Outstanding among these is the control of production in the East Texas field, which makes possible an ultimate recovery of oil from that prolific source materially greater than could be achieved by the methods employed less than a decade ago. Equally noteworthy is the manner in which the former wastage of billions of cubic feet of natural gas in the Texas Panhandle has been virtually eliminated. There are many other instances, equally worthwhile but less spectacular.

This record is worthy of praise but there is another one of which little is said publicly which indicates that many things which would have been helpful have remained undone or, if done, could have been done better or sooner. I need not call the roll of these. Those of you who have seen excessive flares burning in oil fields, have watched subsurface pressures drop sharply so that energy has been dissipated without doing useful work, who know of fictitious well-potentials, or are familiar with the practice of crediting to dead-wells oil produced in other wells in order to establish an apparent conformance with state orders, are aware of some of the items in this record.

From the viewpoint of the industry as a whole, crude oil production during recent months has been excessive and conditions have developed which are in conflict with a sound policy of oil conservation. Furthermore, the continued high rate of drilling indicates that the difficulties from this source will be maintained rather than diminished.

Nearly 20,000,000 bbls. of crude oil have been added to storage in recent months. This oil could have been allowed to remain in its natural reservoir underground until needed instead of being placed in surface tanks where it is subject to the hazards of fire and flood, and to the evaporation of the lighter gasoline fractions.

This year, the oil industry exported 20,000,000 bbls. more and imported 1,000,000 bbls. fewer of petroleum and its products than it did during the corresponding period of last year. Currently, our exports of oil are nearly three times as large as our imports. A relationship of this sort does not help in establishing a parity between our oil reserves and those of the rest of the world.



Mr. Ickes delivering his address. President C. F. Roeser of Independent Petroleum Association of America, seated

There was a consistent lowering of gasoline yields at petroleum refineries during the past summer and this deficiency apparently continues. This is not a prudent use of an essential raw material nor is it in accord with the statement of an oil association that the refining industry is engaged "in an untiring effort to increase the ultimate gasoline yield to the theoretical maximum." The operation of our oil refineries should be kept in step with a sound policy of conservation by obtaining from domestic sources the maximum of the lighter and more valuable petroleum products and from outside sources what we lack of the heavier and less valuable oils.

Under present procedure for oil and gas conservation, producing states have the right to prorate production so as to prevent waste. They also have the right, under the Interstate Oil Compact, to put their heads together for the prevention of physical waste. The federal government has the right to regulate interstate commerce so as to prevent it from being used to obstruct the carrying out of state policy.

Five states — Kansas, Louisiana, New Mexico, Oklahoma and Texas — producing three-fourths of the national oil output, have laws for regulating production so as to prevent waste. California, which produces 18 per cent of the nation's oil, and the states of Arkansas, Illinois and Michigan, in which there has been renewed activity in oil production, have not yet enacted such laws. There is a variation in the respective state laws and in the orders issued thereunder. Moreover, some states are inclined to pay special attention to that class of waste which occurs when production is in excess of demand and only casual attention to the underground waste which results from the operation of wells with high gas-oil ratios and an inefficient use of the natural reservoir energy.

Through the Interstate Oil Compact, consented to by the congress and extended recently until September 1, 1939, the six member states—Oklahoma, Texas, Kansas, New Mexico, Colorado and Illinois—agree among themselves to enact or continue laws which will prevent certain enumerated types of waste in oil production. The Interstate Oil Compact Commission was constituted in order to encourage cooperation in the exercise of their police powers in order to promote the maximum ultimate recovery from the petroleum reserves of the states, and likewise to report its findings and recommendations as to methods, practices, circumstances and conditions for bringing about conservation and the prevention of physical waste of oil and gas. The compact provides a mechanism for the establishment among the member states of uniform conservation practices, and could, if it would, promote vigorous competition in conservation, thereby justifying the hope of the congressional subcommittee which encouraged the formation of the compact and recommended its extension at the last session of the congress.

The federal government, through the Connally law, supports the state policy by providing that petroleum, or the products thereof, produced in excess of the amounts permitted by state statute is contraband and may not be moved in interstate commerce. In the issuance of federal tenders thereunder, the department of the interior follows the letter of the law. The termination date of this act recently was extended until June 30, 1939. In my opinion, and I so recommended to the congress, it should be made permanent, as its usefulness and effectiveness have been demonstrated.

You cannot expect legislatures to enact adequate laws, regulatory commissions to issue suitable orders, courts to render proper decisions, or the public to support what you are doing unless you agree on the fundamental principles which govern the efficient production and wise use of oil. In addition to continuous research, there is need for a dissemination of knowledge by which the industry will train itself and prepare the way for an adequate understanding among those who regulate its affairs and by those who consume its products.

Standing firmly upon its own feet and with its principles clearly established and announced, a program of oil conservation, which is that and nothing else, is certain to win the support of a fair-minded public and its representatives in the halls of legislation. I urge that you proceed promptly to this task, as we cannot await the day of scarcity before correcting methods that cry out for correction.

The responsibility for the future of oil in our nation rests mainly in the hands of the oil industry. With this responsibility will go credit for accomplishment or blame for neglect of opportunity.

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Pipe Line Activity

Missouri Franchise Tax Law Test May Be Dismissed

WASHINGTON, D. C.—The Supreme Court indicated October 14 it would dismiss an attack by the Phillips Pipe Line Co. on the constitutionality of a Missouri franchise tax law. After counsel for the company had presented the case the court declined to hear arguments from attorneys for the state.

The state sought to exact a $1,117 levy from the company for the privilege of doing business in Missouri. The Missouri Supreme Court ruled against the company.

The Phillips concern contended it was engaged solely in interstate commerce and the statute, as applied to it, was an unconstitutional attempt to interfere with interstate commerce.

New Pipe Line and Refinery Projected for Bay City, Mich.

SAGINAW, Mich.—To help ease the production situation in the Buckeye Township field, Gladwin County, rated at a daily potential of about 120,000 bbls. but restricted in September to an average daily run of 24,000 bbls., a new pipe line is to be laid to serve that field, carrying 3,000 bbls. a day to a new refinery at Bay City, on a site near the mouth of the Saginaw River. Announcement of the projects was made by James C. Graves of Saginaw, chairman of the Michigan producers' proration committee and an independent operator in the Buckeye area.

The new companies are to be known as Bay Pipe Line Co. and Bay Refinery Co. Howard D. Atha, Mount Pleasant, of Gordon Oil Co., is president of the pipe line company and vice president of the refinery company, while Mr. Graves is vice president of the pipe line company and president of the refinery company. Glenn C. Kaley, Saginaw is secretary-treasurer of both. Backers of the new companies include Gordon Oil Co., Turner Oil Co., Stewart Oil Co., Virgil R. D. Kirkham, James C. Graves, Morris Yabrove and Abraham Snyder, all of whom have extensive production in the Buckeye field.

The pipe line will be 33 miles long, a single 6-inch line. The refinery will have a daily capacity of 3,000 bbls. Both are to be completed by the first of the year.

Rocky Mountain Gas Co. May Build Line to Lusk

Application for a 50-year franchise for furnishing natural gas to the town of Lusk, Wyo., has been made to the city council of Lusk by Rocky Mountain Gas Co., Ohio Oil Co. subsidiary. Under the franchise, a 22½-mile line connecting the city with the Lance Creek field would be laid, and dry gas piped to the city from Ohio Oil Co. absorption plant in the field. Estimated cost of such a line would be around $100,000.

Chicago Natural Gas Suit Going to Supreme Court

WASHINGTON, D. C.—The Supreme Court has agreed to take jurisdiction in the suit of Natural Gas Pipe Line Co. of America to restrain the Illinois Commerce Commission from requiring a report on cost of its property used in supplying gas to the Chicago District Pipe Line Co.

Gas Line to Philadelphia Is Opposed by State Officials

HARRISBURG, Pa.—The plan to add Philadelphia to the cities served with natural gas has run against the opposition of Pennsylvania Public Utilities Commission officials. Richard J. Beamish, a member of the commission, last week in Harrisburg declared Governor Earle is opposed to granting any permission for construction of the necessary lines until the anthracite problem is solved.

A syndicate headed by John T. Cunningham, Rixford, Pa., has offered to provide natural gas at $1.20 per 1,000 feet with the gas to have a heating value of 1,100 B.t.u. Cunningham proposes to draw the supply from Tioga and Potter counties in northern Pennsylvania and from three southern New York counties.

Beamish said recent testimony before the commission indicated the supply of the Tioga County natural gas fields is diminishing. He said the wells are shallow and several thousand acres of supposed gas reserves have been declared worthless.

The city's lease to the Philadelphia Gas Works Co., an affiliate of United Gas Improvement Co., expires January 1, 1938.

Supreme Court Denies Review Of Texas Pipe Line Tax Case

Whether the Texas Supreme Court acted properly in upholding constitutionality of the state tax on intangible property in the case of the Texas Pipe Line Co. will not be examined by the U. S. Supreme Court.

Texas Pipe Line Co., subsidiary of the Texas Corp., was denied a review of a circuit court decision holding the tax basis of the affiliated Texas corporations was changed by an intercompany transfer of property.

Wasson Pool Line Completed To Be Extended to Bennett

Humble Pipe Line Co. has completed its 6-inch line from Hobbs, N. Mex., to its new station in the Wasson pool of northwestern Gaines County, West Texas. A gathering system has been laid from the new station into the pool. Humble is also to extend the line 12 miles north into the Bennett pool of southeastern Yoakum County.

Appalachian Area

(Continued from Page 25)

ment work in Medina fields will slow up on account of imports of gas from Pennsylvania which nearly have been doubled since the discovery of Oriskany production.

Commercial production from the Trenton is found in only four counties, he said, and he saw but little prospect for development of a good gas field in this sand. He gave a detailed description of the Pulaski field whose 73 wells in 18 square miles may find production in 20 horizons in a formation with varying rock pressures. In some instances when a good production is encountered the gas is piped to an old hole where it is stored to be recovered when needed.

At the final session Saturday Ben F. Hake, Gulf Oil Corp., spoke on the "Geological Occurrence of Oil and Gas in Michigan," and Theron W. Wasson, Pure Oil Co., on the "Geological Occurrence of Oil and Gas in Illinois."

Mr. Wasson described the new fields of southeastern Illinois and said they are typical Illinois fields, like older pools 30 miles to the east, and "will make their production from small, long-lived pumping wells." Discovery of oil in Michigan in 1927 prompted Pure Oil's interest in the Illinois Basin, he said. Published logs of old wells showed a disturbance between the towns of Flora and Olney which was checked by a reconnaissance torsion balance survey in 1930 and rechecked by reflection seismograph surveys in 1935 and 1936. Drilling along the structure, apparently a southwestward extension from the Oakland anticline, has confirmed this work, he said.

Principal production is from the McCloskey, averaging from a few feet to 10 or 15 feet in the best wells. He mentioned that acid treatment is successful since the Oolitic sand is easily dissolved. Mr. Wasson pointed out production in the Indiana and older Illinois fields is found in rocks older than the St. Genevieve, near the top of which lies the McCloskey, to show the possibility of production from deeper unknown and unexpected horizons that will take drilling to 7,000 feet to determine.

An exhaustive paper on the "Chester Formation of Western Kentucky," was presented by R. E. Stouder, Louisville Gas & Electric Co. The Chester in Kentucky corresponds to the St. Genevieve of Illinois and Mr. Stouder discussed it in the light of possible productivity.

Newell M. Wilder, Petroleum Exploration, Inc., concluded the meeting with a paper on "Results of Repressuring in Kentucky." Mr. Wilder cited three separate projects which had a combined production of 63½ bbls. before being repressured and 205 bbls. afterward. The variable nature of sand bodies prevents the establishing of hard and fast rules for repressuring, he said. He advocated close spacing, discussed required volume and pressure of repressuring media, emphasized the importance of controlled gas-oil ratio and proper setting of packers.

Presiding at the various sessions were Mr. Fuqua, J. E. Billingsley, Commonwealth Gas Corp., and DeWitt T. Ring, Ohio Fuel Gas Co.

During the convention the geologists visited laboratories of Gulf Research and Development Co. at Harmarville and the Jones & Laughlin tube mill at Aliquippa and were guests of the Engineers Society of Western Pennsylvania.

Natural Gasoline

City Gas Plant Cuts Leakages Costing $2,000 Annually

PAULSBORO, N. J.—Two projects which will eliminate an estimated 20 per cent loss in the operating cost of the city gas plant in Paulsboro, N. J., recently have been completed. The projects corrected gas leakage through the joint caulkings in the mains throughout the system, Necessity for the work arose in 1935 when the city to reduce operating expenses, substituted natural butane for the water gas it had been using.

Before beginning work on the mains, WPA workers made an extensive street surface survey of the system, testing for leaks at 20-foot intervals over more than 5,000 feet of pipe. Tests were conducted with pulsating machines in which a chemically activated arrangement of tubes and dials, sensitive to illuminating gases, automatically recorded presence of escaping gas in varying degrees. To prevent future leaks a substitute for rubber was sought, and after several tests, a synthetic rubber was adopted for use in recaulking.

Repairs were made on over 5,900 feet of main, 60 old fittings repaired and 494 bell and spigot joints reinforced with clamps and butane gaskets. In addition, pipe weakened by electrolysis, and the destructive effect of stray electrical currents, was replaced where necessary.

New California Gasoline Plant Starts Operation

LOS ANGELES, Calif.—Rancho Gasoline Co. has started operation of its new natural gasoline plant at Tejon ranch, the plant handling wet gas from Reserve Oil & Gas Co. No. 33-3 well in section 33. Daily gas capacity of the plant is 20,000,000 feet, although at present it will be operated at less than one-half capacity. R. E. Bering is president of the company.

New Stabilizer Installed in Rodessa Gasoline Plant

Arkansas Fuel Oil Co. has just completed the installation of a new stabilizer in their Rodessa gasoline plant, now having a total capacity of 100,000,000 feet daily. This plant is designed to operate on low, intermediate and high pressures, due to the variable nature of wells throughout the Rodessa field.

Natural Gas News

U. S. Supreme Court Decisions In Natural Gas Litigation

WASHINGTON, D. C. — The Supreme Court has agreed to reopen its decision of last term denying the California Railroad Commission power to regulate the Pacific Gas & Electric Co. By a four-to-four decision that court automatically affirmed a decree of injunction against the commission issued by the Northern California Federal District Court. Justice Sutherland stood aside.

Consumers Power Co. was denied a Supreme Court review of a circuit court ruling that the city council of Saginaw, Mich., lacked authority to approve a proposal for furnishing natural instead of artificial gas and fixing rates above those for the artificial gas. The circuit court held that rate fixing required approval by voters of the city and that rates already established for artificial gas were lawful rates for natural gas.

Lone Star Gas Co., operating in Texas and Oklahoma, was granted a Supreme Court review of a Texas state court decision upholding a rate order against it made by the Texas Railroad Commission.

The company contended the order fixing 32 cents per 1,000 feet as the rate to be charged at the gates of all Texas cities was confiscatory and violated the commerce and due process clauses of the Constitution and the fourteenth amendment. The rate had previously been 40 cents per 1,000 feet.

Texas Dry Gas Withdrawals Show Increase in August

Total withdrawals of dry gas in Texas during August increased 3.77 per cent as compared with July's production, daily withdrawals in August amounting to 1,770,913,000 feet as compared with 1,706,506,000 feet in July, according to the report compiled by the Railroad Commission of Texas. Withdrawals in the Panhandle accounted for 1,344,415,000 feet daily during August, or 1.77 per cent higher than in July. Of the dry gas produced, 1,082,937,000 feet was sweet and 687,976,000 feet sour.

Dry gas produced during August was disposed of as follows: Light and fuel 31.25 per cent; gas lift and repressuring 1.45 per cent; to gasoline plants 64.20 per cent; miscellaneous lease operations and drilling 3.10 per cent.

Total gas handled by natural gasoline plants amounted to 2,115,838,000 feet daily, of which 914,717,000 feet was casinghead gas, 567,400 feet dry sweet gas, and 633,721,000 feet dry sour gas. From this daily total 2,192,023 gallons of natural gasoline (based on 26-70 grade) were produced, or an average recovery of .965 gallon per 1,000 feet. In addition to this natural gasoline, 209,364 gallons of butanes and propanes were recovered daily. Carbon black plants processed a total of 882,699,000 feet of residue gas daily to produce 1,202,108 pounds of carbon black.

Federal Control of Gas Bill To Be Pushed Next Session

WASHINGTON, D. C.—Final approval of a bill to authorize federal control of natural gas in interstate commerce will be sought at the special session of congress.

Senator Robert J. Bulkley of Ohio said he would push for a vote in the senate where the measure is pending. It was passed by the house.

The bill would invest the federal power commission with wide authority to determine fair rates and otherwise regulate the transportation and sale of gas in interstate commerce.

Laredo Rate Reduction Case Argued in Supreme Court

WASHINGTON, D. C.—F. G. Coates, counsel for United Gas Public Service Co., opened argument before the Supreme Court in an appeal seeking reversal of a Texas Supreme Court decision upholding a 55-cent per 1,000 feet natural gas rate for Laredo.

The Texas high court affirmed rulings by lower state courts that the rate, set by the Texas Railroad Commission, is reasonable. The present rate is 75 cents per 1,000 feet.

The utility is contesting the rate on grounds that it is confiscatory and would not yield sufficient revenue to permit the company to operate profitably. It contends the rate should be $1.50 per 1,000 feet.

"The 55-cent rate would leave the company a net return of 1.1 per cent in 1932 and 2.1 per cent in 1933 at the property value set by the commission," Mr. Coates said.

He said the commission valued the utility's property in Laredo at $885,000 but, he contended, the proper valuation is $1,225,000.

Kansas Commission Will Hold Hearing on Otis Gas Field

A hearing will be held before the Kansas Corporation Commission at Wichita, October 27, to determine market demand for gas, production percentages and determine acreage units and their pertinent factors in fixing quotas for wells in the Otis field of Rush and Barton counties. Purchasers will submit in writing at the hearing the amount of gas they expect to purchase directly from Otis wells during November.

Refinery Projects

Gulf Coast Refinery Men Organize Instrument Group

HOUSTON, Tex., Oct. 18.—Refiners attending the Oil-World Exposition conducted a series of conferences on various phases of the refining industry, featuring papers by outstanding technologists, chemists and engineers.

Perhaps the most far-reaching result was the tentative organization of a new refiners' group, given the preliminary name "Gulf Coast Society of Instrument Maintenance Men." In this group, key men representing the large plants of the Gulf Coast are striving toward a better general knowledge of control and measurement of refining processes, and a more wide-spread understanding among operators of the instruments.

On the initiative of J. G. Kerley, Shell Petroleum Corp., and R. L. Nichols, Magnolia Petroleum Co., representatives of the coastal refineries discussed plans for the organization. Included were: W. H. Fortney, Humble Oil & Refining Co.; P. E. Darling, Pan American Refining Corp.; Mike Mulligan, Sinclair Refining Co.; Earnest Butterworth, Standard Oil Co. of Louisiana and B. F. Norman, Freeport Sulphur Co. Mr. Nichols was chosen temporary chairman to contact all refinery instrument men in the district.

The new society is not restricted to engineers. Its primary purpose is to improve the application of instrumentation in refining. The scope of the society is limited at present to the Gulf Coast but it is probable interest of refiners in other districts will make the organization nation-wide. Mr. Nichols, Magnolia Petroleum Co., Beaumont, Tex., present chairman, will handle all correspondence.

Inclusion of instrument employed men in natural gasoline manufacture, oil production, and all chemical processing industries, was discussed, but decisions depend on the interest shown.

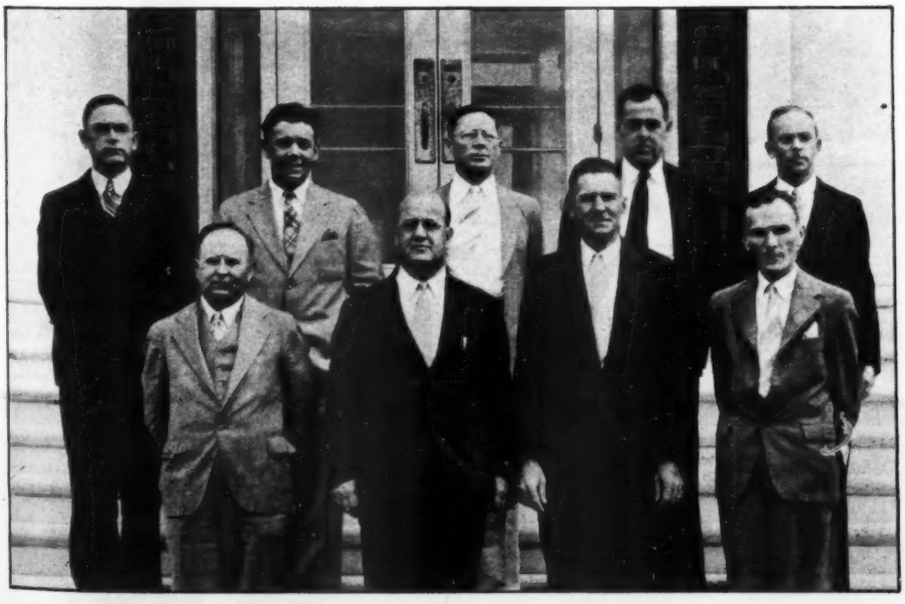
The measurement and control subcommittee consisted of M. C. Dannenbaum, R. L. Mallory and Joe Miller. Ten papers were presented to the refiners group, dealing in thermometry, pyrometry, measurement of flow, pressure regulation and measurement, control of temperature and control of flow. Papers dealing with production, transportation, refining, marketing and use of petroleum were also presented.

Two days were devoted to conferences on refinery laboratory procedures and refinery processes, at which a total of 13 papers was presented. The entire group of conferences was arranged by the refinery committee of the exposition, with W. H. Curtin, chairman, and Ed G. Lenzner, assistant chairman.

Louisiana Company Receives Tax Exemption Contract

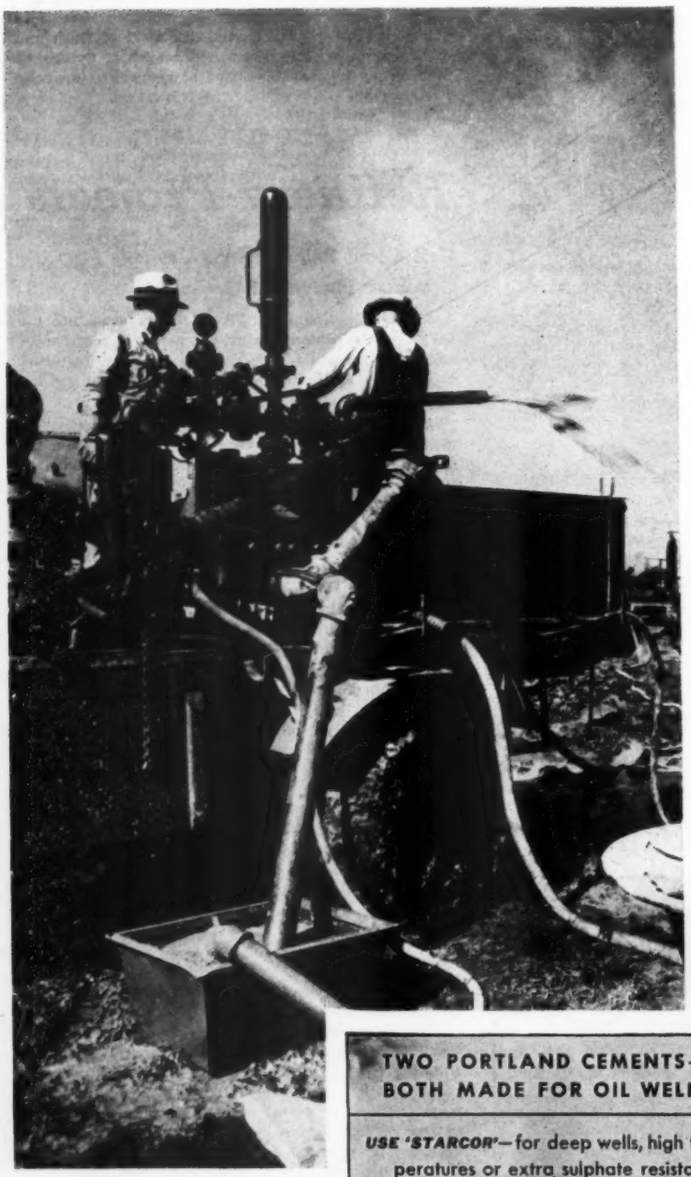
NEW ORLEANS, La.—Standard Oil Co. of Louisiana has obtained a tax exemption contract signed by Governor Leche providing for the addition of $3,000,000 worth of new units and auxiliary equipment to the company's Baton Rouge plant. The new construction at Baton Rouge will consist mainly of units for the production of high-octane aviation fuel.

BUREAU OF MINES STAFF AT BARTLESVILLE STATION



The bureau celebrated the opening of its enlarged experimental plant at Bartlesville, Oct. 19-20. Back row: left to right, R. E. Heithecker, Boyd Guthrie, J. W. Horne, D. B. Taliaferro, H. M. Smith. Front row: Ludwig Schmidt, N. A. C. Smith, supervising engineer; E. J. Dewees, W. B. Berwald.

'SQUEEZE' JOBS



'STARCOR'S LOW VISCOSITY A BIG HELP

IT TAKES an experienced operator to do a successful double-squeeze job. And it takes a cement that has both low viscosity and high gel strength. A job in the Refugio Field shows how well 'Starcor' meets these requirements.

This well had been producing since 1932, from sand below the 4700-ft. level. Well was plugged—casing was perforated at 4600 and 4680 ft.—salt water at both points. A double-squeeze was then made. That required an 80-ft. wall of perfect cement around the casing. They took no chances—'Starcor' was used.

'Starcor's low viscosity made it possible to pump 80 sacks of 15.8-lb. slurry into the formation below a cement retainer at 4660 ft., with pump pressures 1800 lbs. and lower. Then, 40 sacks of 'Starcor' in a 15-lb. mix were pumped into the formation through the top perforations. When casing was perforated at oil sand, they got an oil-flow free from salt water contamination.

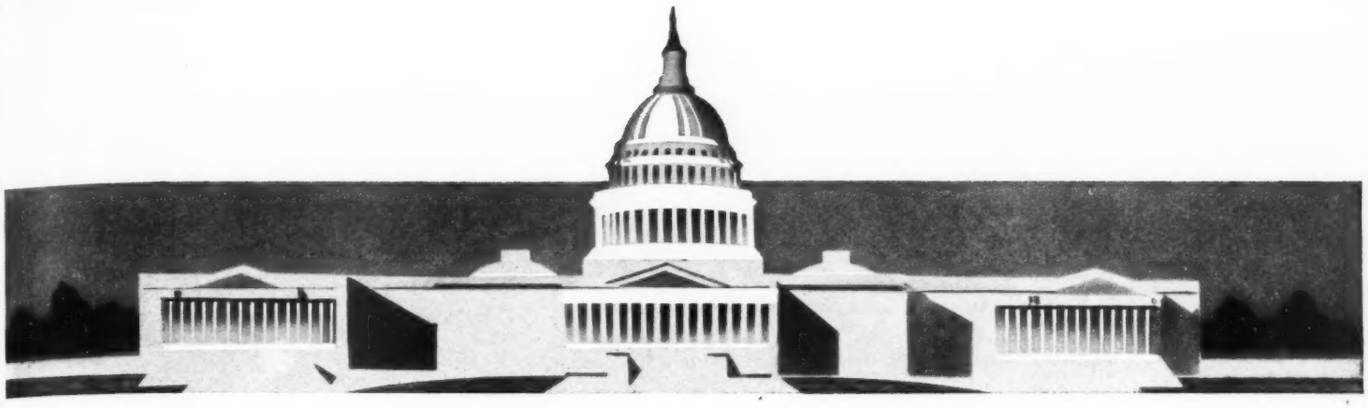
'Starcor'* is specially adapted for squeeze, plug-back and re-conditioning jobs, as well as for deep holes, high temperatures and extra sulphate-water resistance. For wells of normal depth, use 'Incor'*, with its 10-year record of success in all of the principal fields. Your dealer stocks both cements for immediate service.

*Reg. U. S. Pat. Off.

TWO PORTLAND CEMENTS—BOTH MADE FOR OIL WELLS

USE 'STARCOR'—for deep wells, high temperatures or extra sulphate resistance.

USE 'INCOR'—for wells of moderate depth.



New Onslaught on Business Is Foreseen in Special Session

By HENRY D. RALPH

WASHINGTON, D. C., Oct. 18.—Another series of headaches for business men, a period of renewed attacks on business and of increased uncertainty for business, will open November 15 when congress reconvenes in special session called by President Roosevelt last week. The five subjects for legislation which the president said required action before the regular session in January are: Legislation to control surplus crop production, creation of seven regional soil and water planning authorities similar to T.V.A., reorganization of executive departments, regulation of wages and hours, and revision of the antitrust laws.

The first four were before congress last session without final action, but to have the president class antitrust revision as an emergency measure was something of a surprise. The average business man goes about his daily work without much thought for the antitrust laws, but any revision of these laws, particularly under New Deal auspices, is bound to affect the fortunes of every commercial enterprise. Therefore if congress accepts this assignment it means business is faced with more uncertainty than since NRA ended.

As pointed out last week, the administration's antitrust policy to date is no policy at all but a mass of inconsistent and contradictory actions, and if a new policy is not to be equally inconsistent it must follow one of three courses —enforced competition, including protection of the price-cutter and chiseler; government sanction to codes of fair competition drafted by industry; or direct government control of business and prices.

In his "fireside chat" the president gave no indication of the nature of the new business legislation he intends to recommend, but after declaring the necessity for keeping up farm prices and raising industrial wages, he said "business prosperity depends much upon a low-price policy which encourages the greatest possible consumption." He further said the only present danger to business profits comes from "restraint now imposed upon business by private monopolies and financial oligarchies."

This is the only clue to what he has in mind. It is true he said "we are already studying how to strengthen our antitrust laws," but no one in Washington can find any evidence of a formal study of antitrust revision beyond the knowledge that a dozen or more individuals in the administration have ideas of their own.

With the president's thesis that private monopolies and financial oligarchies are keeping prices high, and in the light of statements made by various administration officials recently it may be assumed what is aimed at is rigidity and uniformity of prices and uniform quotations and bids in many industries, usually caused by such practices as open-price filing, the basing point system, or following the price lead of a few large concerns. Since the NRA codes almost without exception tended to increase price uniformity by one scheme or another it can be assumed the administration is not intending to revive the system of industry-made codes, and since the recently enacted Robinson-Patman and Tydings-Miller acts have this same tendency there is more than a possibility these laws will be reconsidered.

It may be helpful to business men contemplating this new administration move to list some of the suggestions for dealing with "private monopolies and financial oligarchies" which have been made in various official quarters.

For the oil industry the most potent suggestion is that natural resource industries be directly controlled by the federal government in the name of conservation, and a precedent exists in the Guffey coal act under which the government is attempting to take price out of the realm of competition in the bituminous industry. The "yardstick" idea now being applied to the electric power industry might also be used in oil if the government should decide to use its oil reserves and royalty oil in a plan to market gasoline to the public as a means of keeping the gasoline price low.

Federal incorporation and licensing of all businesses operating in interstate commerce is a plan long advocated by the American Federation of Labor and recently echoed by Senators Borah and O'Mahoney.

In the field of finance, the Securities and Exchange Commission has already recommended several bills to break up the control of bankers and strong financial interests over the reorganization and merging of corporations, and further studies are being made along this line, all with the idea of preventing the growth of big business units and the concentration of economic power.

Use of the taxing power to break up big corporations has been suggested by several officials. Intercompany dividend payments have recently been subjected to taxation and an increase in the rates is under discussion. Taxes are being discussed on reorganizations and mergers and also on business holding companies.

A direct attack on bigness in business is proposed by the Federal Trade Commission which recently recommended amendments to the Clayton act to prevent any concern growing so large in its capitalization or percentage of business as to dominate its industry.

Patent monopolies are also under suspicion, and several New Dealers have thrown out the suggestion the patent laws should be altered to prevent concerns growing too large or controlling competitors through patent rights.

Reducing tariff duties has also been discussed as a means of attacking industries where prices appear to be high and rigid.

But turning to the antitrust laws themselves the administration faces a serious dilemma. The object of the antitrust laws is to enforce the greatest possible degree of competition after outlawing certain methods of competition declared to be unfair. Strong competition naturally means that the weak, inefficient, and unprogressive units are forced to the wall, whether these be large concerns or small, until prices become more or less stabilized through a competition of efficiencies. But for four years the administration has been championing the "little man" in business and attacking the "ten per cent of chiselers," and has been seeking to prevent small business units from being lost in the competitive struggle. To this end it has been much concerned with minimum prices as in its farm program, the NRA, and more recently the Robinson-Patman and Tydings-Miller acts. How to break up uniformity of prices and force price competition and yet keep a "floor" under prices for the benefit of weak competitors is the problem which now faces the administration and congress.

The inevitable conclusion is this can be done only by having the government take an active part in the determination of industrial price policies, a conclusion fortified by the administration's well-known distrust of what used to be called natural laws of competition.

Oil News from Foreign Lands

Ecuador Production

Ecuador produced 1,942,467 bbls. of crude oil during 1936 compared to 1,731,739 bbls. in 1935. Anglo-Ecuadorian Oilfields, Ltd., production amounted to 1,837,506 bbls. The remainder of the production was distributed among seven units. The smallest producer accounted for 466 bbls.

Australians Like U. S. Lubes

The United States supplied more than 92 per cent of the lubricating oil imported by Australia during the first half of 1937, but lost some ground compared to the same period in 1936. This country also lost a little ground as a source of Australia's gasoline, but continued the second largest supplier.

Total consumption of petroleum products and crude oil by Australia increased about 15 per cent during the first half of 1937 compared to the same period last year, or from 188,477,942 gallons to 217,091,421 gallons. As in the past, the largest item of imported petroleum was gasoline which totaled 151,207,138 gallons for the first half of 1937 compared to 131,005,657 gallons in the January to June period of 1936.

Imports of all other products, including crude oil, increased this year, with the exception of lubricating oil which declined from 7,932,018 gallons during the first half of 1936 to 7,215,303 gallons in the first half of this year.

The imports and sources for the first half of 1937 and 1936 are shown by products in the following tables:

KEROSENE

(In gallons)

Source—	1936	1937
United Kingdom	699,623	8,000
British Borneo	37,992	848,650
Dutch East Indies	13,865,482	18,201,695
Persia	1,018,700	2,088,033
United States	3,355,217	4,245,880
Total	18,977,004	25,392,258

LUBRICATING OIL

(In gallons)

United Kingdom	64,238	149,201
Belgium	10,765	2,022
Germany	381,526	272,332
Mexico	24,058	8,351
Soviet Union	56,020	109,283
Denmark	5,468	.....
Netherlands	8,105	.....
Latvia	880	.....
Dutch East Indies	.....	4,600
Venezuela	.....	88
United States	7,380,958	6,669,426
Total	7,932,018	7,215,303

CRUDE OIL

(In gallons)

United Kingdom	.....	54,324
Dutch East Indies	15,889,113	17,417,360
Persia	14,674,150	15,800,372
United States	.....	4,666
Total	30,563,263	33,276,722

MOTOR FUEL

(In gallons)

United Kingdom	927	28
Germany	68	5
Netherlands	88	88
Dutch East Indies	69,601,725	103,323,615
Persia	23,091,946	11,408,730
Rumania	2,557,069	.....
Iraq	436	.....
Soviet Union	.....	44
United States	35,753,398	36,474,628
Total	131,005,657	151,207,138

Probably the outstanding trend in Australia's petroleum import traffic as reported by the American trade commissioner at Sydney and made available through the department of commerce is the increase in receipts of kerosene, crude oil and motor fuel from the Netherlands East India.

New English Wildcat

Another test for oil production has been started in England, Steel Brothers & Co. project at Upper Booth, near Edale, Derbyshire. Acreage held by this concern under prospecting permit from the British government is shown in a map of England printed in The Oil and Gas Journal, December 31, 1936.

D'Arcy Exploration Co. test near Newbury at Kingsclere is drilling below 3,200 feet having entered the middle Jurassic at 3,162 feet. The same company is drilling at 1,300 feet on another test near Whitby at Eskdale and still another project at Cousland, near Dalkeith, is preparing to resume drilling after cementing casing at 274 feet.

Venezuela Oil Exports

Exports of petroleum from Venezuela during August totaled 2,319,861.862 metric tons, including 1,647.628 metric tons of gasoline, representing an increase of 14.6 per cent over shipments during the same month last year. For the first eight month of 1937, exports were 15,785,303.467 tons.

Lago Petroleum Corp. and Standard Oil Co. of Venezuela exported a combined total of 8,041,845.258 metric tons during the first eight months of the current year, including 11,300.418 metric tons of gasoline, to lead all companies. The two subsidiaries of Standard Oil Co. of New Jersey are the largest producers in the country as well as the largest exporters.

Exports of petroleum by months from January to August in 1936 and 1937 follow (figures in metric tons):

	1937	1936
January	1,162,737.774	1,713,132.831
February	1,489,476.059	1,731,181.127
March	2,024,151.590	1,793,690.595
April	2,074,932.809	1,757,310.568
May	2,284,878.392	2,013,251.689
June	2,112,497.584	1,825,244.283
July	2,316,767.397	1,960,123.402
August	2,319,861.862	2,023,898.016
Total	15,785,303.467	14,817,832.511

East Indies Development

Intensified development in proven fields of Java and discovery of new areas in northern Sumatra were the chief contributing factors to an increase of 10 per cent in crude output from the Netherlands East Indies during first half of 1937.

A report from Donald W. Smith, United States trade commissioner at Batavia, Java, shows production of 3,498,929 metric tons during the first six months. On the basis of 7 bbls. per ton, the East Indies produced 24,492,503 bbls. of crude during the first half of this year compared to about 22,043,253 bbls. for the same period in 1936.

In the second quarter, the fields produced 1,794,583.8 metric tons, an increase of 5.3 per cent over the first quarter and 16.3 per cent more than for the corresponding period in 1936. The heavier production was due almost entirely to greater output in Java and Madura and North Sumatra, where yield showed a gain of 38.3 per cent and 22.7 per cent, respectively. With exception of the Djambi fields, which produced 1.2 per cent more in the second quarter than in the first quarter, all the other fields showed a decline ranging .7 per cent to 2.9 per cent.

By territories, the production of crude in Netherlands Indies, is shown below:

Territory—	Jan.-March, 1937	April-June, 1937	April-June, 1936
Java and Madura	177,372.4	245,249.3	.....
North Sumatra	172,851.6	212,091.0	168,905.3
Palembang	690,110.7	681,983.4	680,649.3
Djambi	210,324.5	212,817.1	156,741.6
South Borneo	253,038.7	245,663.4	243,441.5
Tarakan	184,123.0	180,800.4	182,569.6
Boenjoe	345.3	83.2	1,863.7
Ceram	16,179.0	16,062.4	10,462.2
Total	1,704,345.2	1,794,750.2	1,444,633.2

Cracking units at Y.P.F. refinery at La Plata, Argentina

ENGINEERING AND OPERATING SECTION

Presenting modern developments in operation of producing properties, refineries and gasoline plants, and pipe lines, including petroleum research in the field and laboratory

This Week

NEW RADIAL TYPE DEEP-WELL PUMP USED BY SKELLY IN POLO FIELD OF OKLAHOMA—By Paul Reed . . Page 44

A recently developed pumping unit in which a hydraulic ram operates conventional sucker-rod equipment is being tested by Skelly Oil Co. A radial-type pump is lifting nearly 1,000 bbls. of fluid daily from a depth of 4,900 feet. The stroke of 15 feet at the rate of seven strokes per minute is provided without shock at reversal of the pump stroke.

SELECTION OF STEEL FOR HIGH-TEMPERATURE SERVICE—By Martin Fleischmann . . . . . Page 48

Employment of high temperatures in refining processes now requires both a knowledge of the strength of materials at these elevated temperatures and also their resistance to oxidation and corrosion. Important topics discussed are effect of alloying elements, strength of steels at high temperatures, corrosion resistance, oxidation resistance and toughness of steels containing alloying elements.

ILLUSTRATED OPERATING IDEAS . . . . . Page 56

Lubricating geared pumping unit. Coils for condensing exhaust steam on drilling rig. Heavy-duty derrick mounted on truck. Safety throw-out switch on electric pumping wells for shutting down motor.

DEVELOPMENT AND GEOLOGIC RELATIONSHIP OF THE APPALACHIAN FIELDS—By George H. Ashley . . . . Page 57

Geologic conditions determining the horizontal and vertical distribution of oil and gas in the Appalachian region are outlined and various fields correlated. Early development of the area is also described.

PROPERTIES OF METALS FOR USE IN LOW-TEMPERATURE PROCESSES—By W. L. Nelson . . . . . Page 63

Extremely low temperatures encountered in dewaxing operations and handling of liquefied gases require metals that do not become brittle or lose their resistance to shock at low temperatures. Types of metals and alloys suitable for these uses are discussed and their properties described.

COMMERCIAL PROCESSES USED IN REDUCING SALT CONTENT OF CRUDE OILS—By Gustav Egloff, E. F. Nelson, C. D. Maxutov and Charles Wirth, III . . . . . Page 66

In order to reduce salt deposition and corrosion of refinery equipment refiners generally have adopted commercial methods of desalting crudes. Methods discussed include processes using heat and pressure, electrical methods, centrifuging and filtration.

PROBLEMS FROM READERS—By L. G. E. Bignell . . Page 75

Use of volcanic ash in drilling fluid. Characteristics of oil country. Effect of temperature on drilling muds.

QUESTIONS ON TECHNOLOGY — By C. K. Francis, Ph. D. . . . . Page 77

Analyses of clay before and after activation for contacting. Contraction not normal for blends of oil and natural gasoline. High octane number material concentrated in SO_2 extract. Analyses of Michigan crudes.

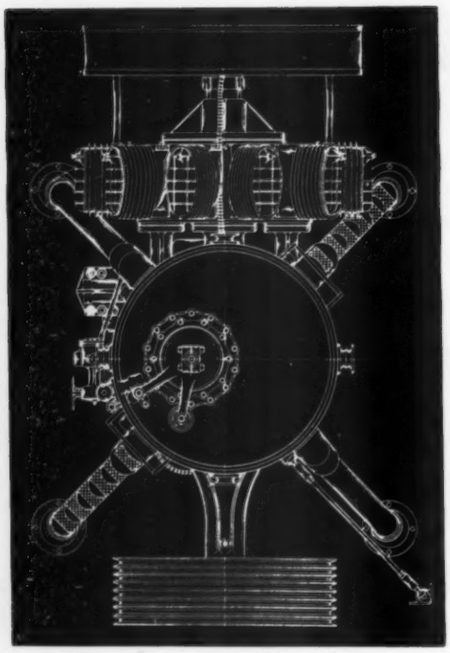


Diagram of the radial-type pump

New Radial Type Skelly in

By PAUL REED

Attacking the problems confronting the industry in the pumping of heavy fluid loads from deep wells, the Skelly Oil Co. has been testing in the Polo field, Oklahoma, a recently developed pumping unit of original design which applies a hydraulic ram to operating conventional subsurface sucker-rod equipment. The device is unique in principle in regard to the manner of lifting and balancing the load. In addition, the design includes a pump for handling the actuating fluid, resembling in general appearance a radial motor on an airplane. This in itself is a distinct innovation in the field of mechanical invention.

Slow Pumping Rate

By combining pneumatic counterbalancing with hydraulic lift, a long stroke of 15 feet at the slow rate of seven strokes per minute is had without shocks at reversals. This equipment, known as the Hydraulic Pumper, has been invented and developed by William E. Hubbard, who was attracted to the possibilities of the principles involved a number of years ago when he was engaged in the business of manufacturing water well pumps. The equipment now in operation in the Polo field is the product of research and tests on deep oil wells in the course of which, it is reported, a persistent characteristic has been an absence of sucker-rod trouble. It is especially adapted to very deep wells and is designed to get the advantages to be had in using hydraulic propulsion as a means for obtaining long strokes. The equipment is centrally placed over the well and functions without using cranks, eccentrics, balance or bandwheels.

Arrangements are being made to have these units manufactured by Hydraulic Pumper, Inc., an Oklahoma corporation, in the process of being organized to provide shop facilities in Tulsa for making these units in sizes to cover the range from small lifts up to large lifts with potential capacity for handling 2,000 bbls. per day from 15,000 feet, quantities lifted varying with conditions of depth. The officers of the company have been engaged in the pumping equipment business a number of years. Roy A. Dunbar, president, and Ralph Van Matre, secretary-treasurer, hold the same offices in the Mid-Continent Pump Supply Co. However, there is no financial connection between the two companies. William E. Hubbard, vice president and manager, in addition to engaging in the water pump manufacturing business, as previously mentioned, was with the Worthington Pump Co. for several years, and during the process of developing this hydraulic pumping device he was in close touch with the pumping practices of major companies operating in the deep fields of California.

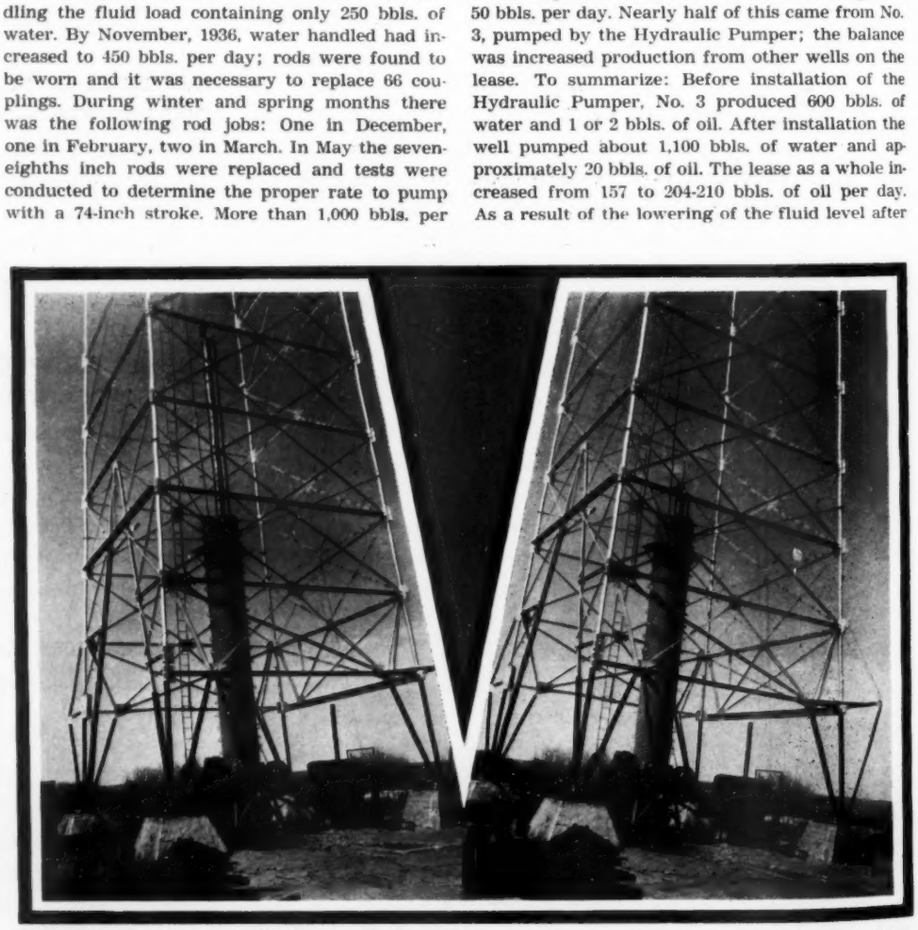
The Skelly Oil Co. has been able to approximately double the fluid output per day of the well during the three months which have elapsed since the Hydraulic Pumper was first installed. Fluid lifted from a depth of 4,899 feet has been increased from 600 bbls. to nearly 1,000 bbls. per day without rod breakage. The Hydraulic Pumper is in operation on well No. 3, Robert M. Hannah lease, in the SW SW of section 22-22n-2w, which is in the northeast corner of the Polo field, Noble County, 13 miles north of Perry, Okla. Total depth of the well is 4,915 feet. Well surveys show the hole is straight.

When the well was first put on pump with conventional beam and sucker-rod equipment in April, 1936, no serious trouble was encountered in handling the fluid load containing only 250 bbls. of water. By November, 1936, water handled had increased to 450 bbls. per day; rods were found to be worn and it was necessary to replace 66 couplings. During winter and spring months there was the following rod jobs: One in December, one in February, two in March. In May the seven-eighths inch rods were replaced and tests were conducted to determine the proper rate to pump with a 74-inch stroke. More than 1,000 bbls. per day could be lifted at the pumping rate of 28 strokes per minute, but there was a rod break every day. From May until the middle of July, 600 bbls. of water per day were pumped at the rate of 22 strokes per minute.

Preparatory to installing the Hydraulic Pumper on July 15, the 2½-inch tubing was replaced by a string of 3-inch tubing. At the same time, the 2½ by 15-foot plunger pump with 2¼-inch bore was replaced by a 3-inch by 20-foot Pacific plunger pump with 2¾-inch bore. When this was done the pump was lowered 415 feet from 4,484 to 4,899 feet. Perforations are at 4,899 feet.

Well Output Increased

The same string of rods was continued in use. This consists of 3,162 feet of seven-eighths inch rods and 1,725 feet of three-quarter inch rods. With the installation of the Hydraulic Pumper and operation with 15-foot strokes at the rate of seven strokes per minute, the output of the well was increased sufficiently to put the well on a paying basis. Oil production for the lease as a whole gained 50 bbls. per day. Nearly half of this came from No. 3, pumped by the Hydraulic Pumper; the balance was increased production from other wells on the lease. To summarize: Before installation of the Hydraulic Pumper, No. 3 produced 600 bbls. of water and 1 or 2 bbls. of oil. After installation the well pumped about 1,100 bbls. of water and approximately 20 bbls. of oil. The lease as a whole increased from 157 to 204-210 bbls. of oil per day. As a result of the lowering of the fluid level after



Hydraulic Pumper installed on a Skelly Oil Co. well in the Polo field, the left view showing the plunger at the start of its stroke and the right view, the completed stroke

Deep-Well Pump Used by Polo Field of Oklahoma

installation of the Hydraulic Pumper, there was sufficient gas produced by No. 3 to run the engine. Previously it had been necessary to use gas from other wells on the lease.

Comments from those in charge of operating the property are to the effect that the device is simple and completely automatic, requiring only occasional adjustments and attention, and that there is an absence of rod breakage due to elimination of shocks at reversals.

The main features of the Hydraulic Pumper, as described by the inventor, William E. Hubbard, are as follows: In principle the device balances the entire weight of the rods, half the weight of the oil lifted, and half the friction and acceleration loads. This is done by means of compressed air which is enclosed in a pressure vessel and this balancing medium is directly placed over the actuating fluid. The additional energy to lift the remaining load consisting of half the oil load, friction and acceleration is supplied by a reciprocating displacement pump radially arranged. The pump is driven by any form of rotating prime mover.

Operation of Pump

A complete automatic valve arrangement allows this described apparatus to raise the centrally placed ram or plunger, to which the sucker-rods are connected, by allowing the energy in the tank to directly aid the pumping apparatus to first take the fluid from the tank and force the ram to the top of the stroke and then to pump from the ram back into the tank. This process is repeated indefinitely. All leakage, either of fluid or air, is automatically conducted back into the device. Its automatic features require only such attendance as is necessary to replace packing and frictionally wearing parts. The actuating fluid used in the machine is a light grade of spindle oil. Provisions are embodied in the device for automatically shutting down the entire equipment in case of rod breakage, engine stoppage or the sticking of subsurface equipment. The machine is totally enclosed and protected from dust and weather conditions with the exception of a V-belt pulley and drive, and these are suitably guarded.

For the purpose of pulling the well, the machine is hung in the derrick and the total time for removing the device from the central position does not take over 15 minutes, after the men become accustomed to handling it. Once the foundations are installed, the unit can be put in operation in a day or two. The device is self-contained and there is no necessity for disconnecting flanges or interfering with the actuating fluid. Nor is it necessary to relieve the air pressure in the course of setting the device to one side of the well or making packing replacements. An indicating device shows the position of the ram at all times; suitable pressure gauges indicate the pressure in the tank and also the weight of the rods as well as the maximum plunger load. The pressure in the air tank is set between the indicated rod and maximum plunger loads. All moving parts are lubricated by the actuating fluid with the exception of the valve gear which runs in roller bearings packed in grease. All wearing parts are replaceable and easily accessible for replacement. Means are provided for changing the stroke or the time of reversal to suit any operating condition and such changes can be made without stopping the machine. The actuating fluid is automatically filtered while the machine is in operation. Total height of the machine is 50 feet; floor space required is 6 feet by 6 feet.

In preparing the foundation, timbers are countersunk into the concrete derrick floor. Standard polish-rod stuffing box equipment is used and there are no further alterations made to the derrick or the derrick floor. Diagonal braces stay the device in the derrick and once these braces are adjusted there is no further need for adjustment. The four legs holding the machine on the derrick floor sit in adjustable cups with means provided for leveling the pumping unit when first installed. The cup-shaped footings of these legs fit into saucer-shaped flanges, bolted to the derrick floor. In removing the device there are no bolts or flanges to disconnect. Complete ladder equipment allows the operator to reach any part of the machine. The cover arrangement is provided with quickly detachable hand-hole plates not shown in the drawing. Packing adjustments can be made without removing the cover.

Development of the machine dates back to 1919, when the inventor, in order to increase his water pump manufacturing business, decided to enter the oil industry equipment field. It was apparent then that equipment which had been satisfactory heretofore in the pumping of oil wells was no longer satisfactory for lifting the greater loads put on equipment by the lowering fluid levels. It was decided to use air balancing in connection with short stroke, crank-operated machines. However, the first trials were made with water wells and it was not until 1924 that the oil industry began to consider departures from conventional practice. It was becoming apparent that long-stroke pumping of deep wells was necessary because rods were stretching beyond the capacity of the short-stroke, crank-operated de-

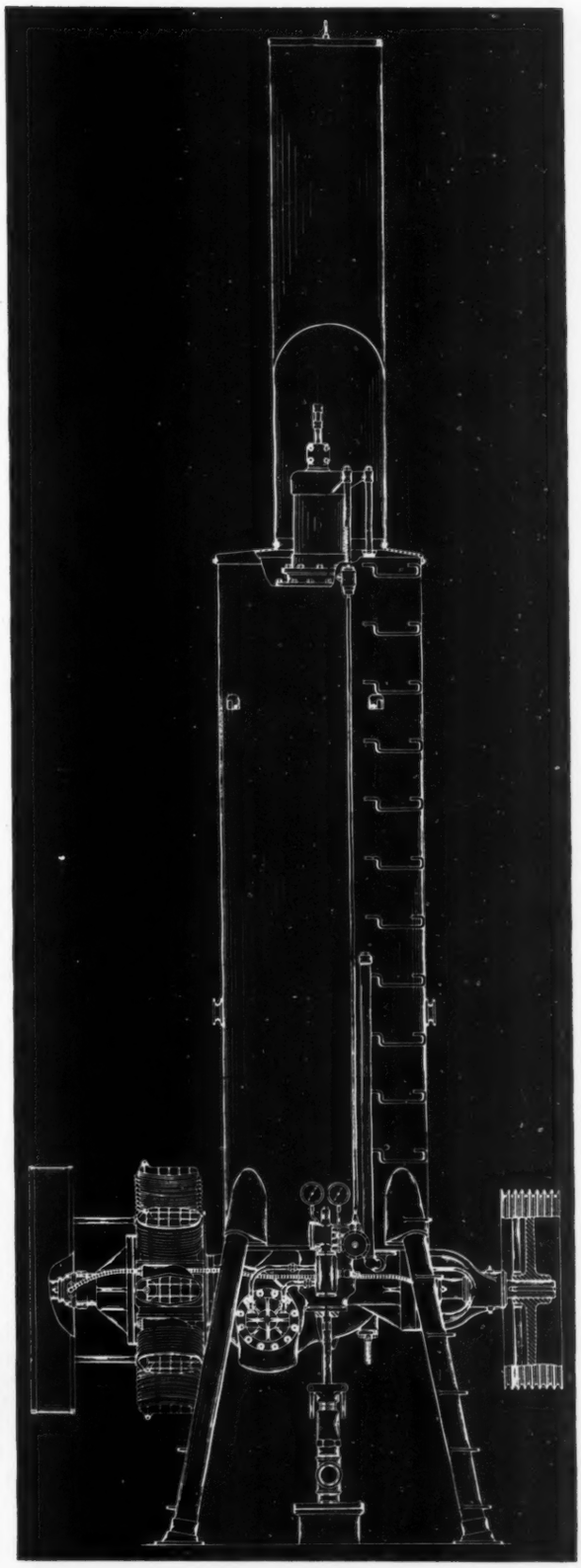
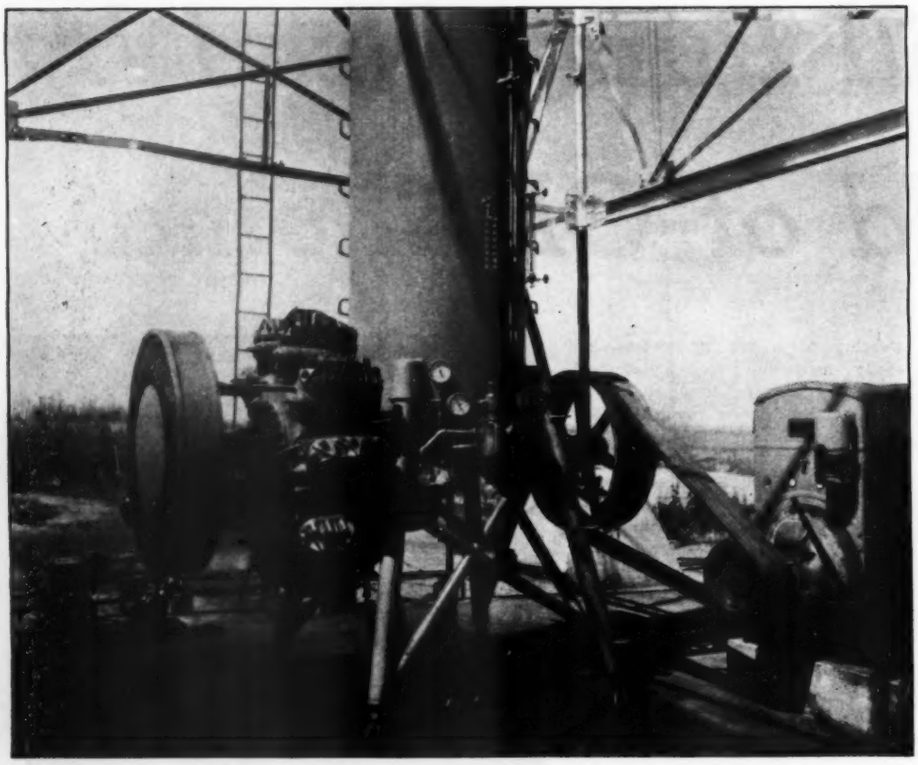


Diagram of the deep-well pump developed for lifting heavy fluid loads from deep wells. The pump has a stroke of 15 feet and operates at the rate of seven strokes per minute without shock



The hydraulic pumper equipped with radial pump

vices, with the use of which there was no movement of rods below to operate the plunger. It seemed logical to have a stroke of such length that both the stretch of the rods and the plunger stroke were taken care of, in order that speeds might be used that were normal for standard pumping practice. Operators had been speeding up crank-driven equipment to such velocities that they were actually throwing the subsurface plunger from end to end of the stroke at speeds beyond the possibility of the fluid in the well being able to fill the pump chambers.

Development of Pump

In the course of the process of evolution leading up to the development of the Hydraulic Pumper, the inventor built a machine in which the present method of balancing was embodied but with this distinction: Balancing in a separate chamber was provided for the entire rod load and half the load due to oil lifted, friction, and acceleration rates. Another cylinder placed in tandem with the rods was used to lift the remaining weight of half the oil, friction and acceleration. It was necessary to push the plunger downward in the cylinder to overcome the overbalanced condition. While in operation this machine showed that due to the gas in the barrel of oil pump, the running valve of the plunger pump did not open immediately on the beginning of the down stroke and that the fluid load stayed on the plunger driving the same downwardly—in some cases more than two-thirds of the stroke. It was seen immediately that if such a condition existed there would be no need of pushing the plunger downwardly and so the inventor developed a pumping unit in which 90 per cent of the rods were balanced and a number of these units were made and operated for a period of years on the West Coast. The use of these machines in practice showed that there was no trouble with sucker-rods. These machines were placed on wells particularly destructive to rods, couplings and tubing. The inventor was therefore encouraged to believe that sucker-rods themselves were the proper means of reciprocating displacement plunger pumps in deep oil wells and that rod trouble in deep wells was not due to the rods themselves but was due to surface equipment; furthermore, that it was not crooked holes which were wearing rods, tubing and couplings but the apparatus which was driving them. However, realizing that the machinery as heretofore developed was costly, occupied too much space, and had too many cylinders and tanks, efforts were made to develop machinery in which equipment would be simplified. The inventor was convinced that the standard type pumps, i.e., reciprocating, centrifugal and rotary, which he had been using for moving the actuating fluid were not satisfactory. Therefore, he found it necessary to design apparatus which would harmonize with the principles now in use in his present equipment. This has taken considerable time and the period of the depression and the introduction of various other means for pumping wells have retarded development until recently. Ideas now in use are in harmony with the loads and conditions peculiar to pumping oil from wells—conditions which are radically different from all methods of pumping liquids in other mechanical fields.

Equalizing Pump

In the application of these ideas, surface equipment adapts itself to the changing stresses to which the subsurface plunger is subject. When the oil plunger is subject to free movement, in either direction, the surface ram adapts itself to the changing conditions and at no time is in conflict with the subsurface plunger. It is to be realized that the greatest losses in the operation of pumping equipment of the reciprocating type are at reversals and it is obvious that if the number of reversals per minute are reduced, such losses are also reduced. It is also apparent that the stretch losses for a 15-foot stroke are no greater than they are for a 3-foot stroke and that in this total piston feet-per-minute travel, it can be seen that the longer stroke minimizes reversals, saves rod stretch, and allows a slower rate of piston-foot-travel, thereby securing greater volumetric efficiencies of the oil plunger. It is seen that if speeds can be reduced, the oil will be able to fill the barrel more completely. To obtain stroke there is no throwing of rods with this equipment.

When installed, the subsurface pump plunger is set 1 foot from the bottom of the stroke. It is possible to change the setting of the plunger without removing the unit from the well or the need of a pulling crew. As stated previously, the various experiments in the development of long-stroke operation, convinced the inventor that by applying the principles, developed from such experiences, rod troubles have been minimized. It is stated that runs of 24 hours per day can be made continuously for periods of a year or longer. The unit in small sizes has been operated in isolated locations where for periods of five to six months it has had absolutely no attention while operating 24 hours a day. And with the refinements of manufacture it is predicted that it will be possible to run for years without replacements. The inventor believes that reciprocating pumps using sucker-rods will be the successful means of pumping even the deepest wells. Because of the air balancing features, it is asserted that this machine can lift the weight of properly proportioned rods pumping from the greatest depths. An elastic medium such as air used for counterbalancing in this machine makes it possible to handle strings of rods of great weight with ease.

Sulfate Resisting Cements

In summarizing the results of a great many tests which have been carried out to investigate the action of sulfate solutions on set cement, and in applying this information to the problem of an oil well cement exposed to solutions of sulfates and chlorides at temperatures which may range from around 100° F. to well over 212° F., Svend Rordam, of the Trinity Portland Cement Co., in a paper delivered before the petroleum division of the A.S.M.E. October 12, at Houston, Tex., pointed out it appears that the need for a sulfate-resisting cement may be more important when the corrosive waters are encountered at lower temperatures than it is in the deep wells where the temperatures may be over 200° F. Other conclusions in his summary were:

The active life of most oil wells is probably lying in the range of from 10 to 40 years. Present oil conservation methods should tend to prolong the life of a well.

The use of a normally nonsulfate-resisting cement, to which has been added set-retarding admixtures to make it suited for cementing at high temperatures, is, in the light of present knowledge, not to be considered as an advisable procedure. It is obvious that it is important that the cementing of a well should stand up until the well is exhausted.

A cement which is definitely not resistant to sulfate solutions at around 100° F. may become more resistant at a higher temperature. On the other hand, a cement which is resistant to the attacks of sulfate waters at a low temperature is bound to be even more resistant at the higher temperatures. For this reason it would seem advisable that only truly sulfate-resisting cements be used in the cementing of oil wells.

Acetylene Association to Meet

The thirty-eighth annual convention of the International Acetylene Association is to be held this year in Birmingham, Ala., November 10, 11 and 12. The keynote speaker will be Dr. James Shelby Thomas, president of Chryler Institute of Technology. It is expected that Dr. Thomas' address will be broadcast over a nation-wide radio hook-up.

CAST IRON PIPE Is Usually The Cheapest In The End

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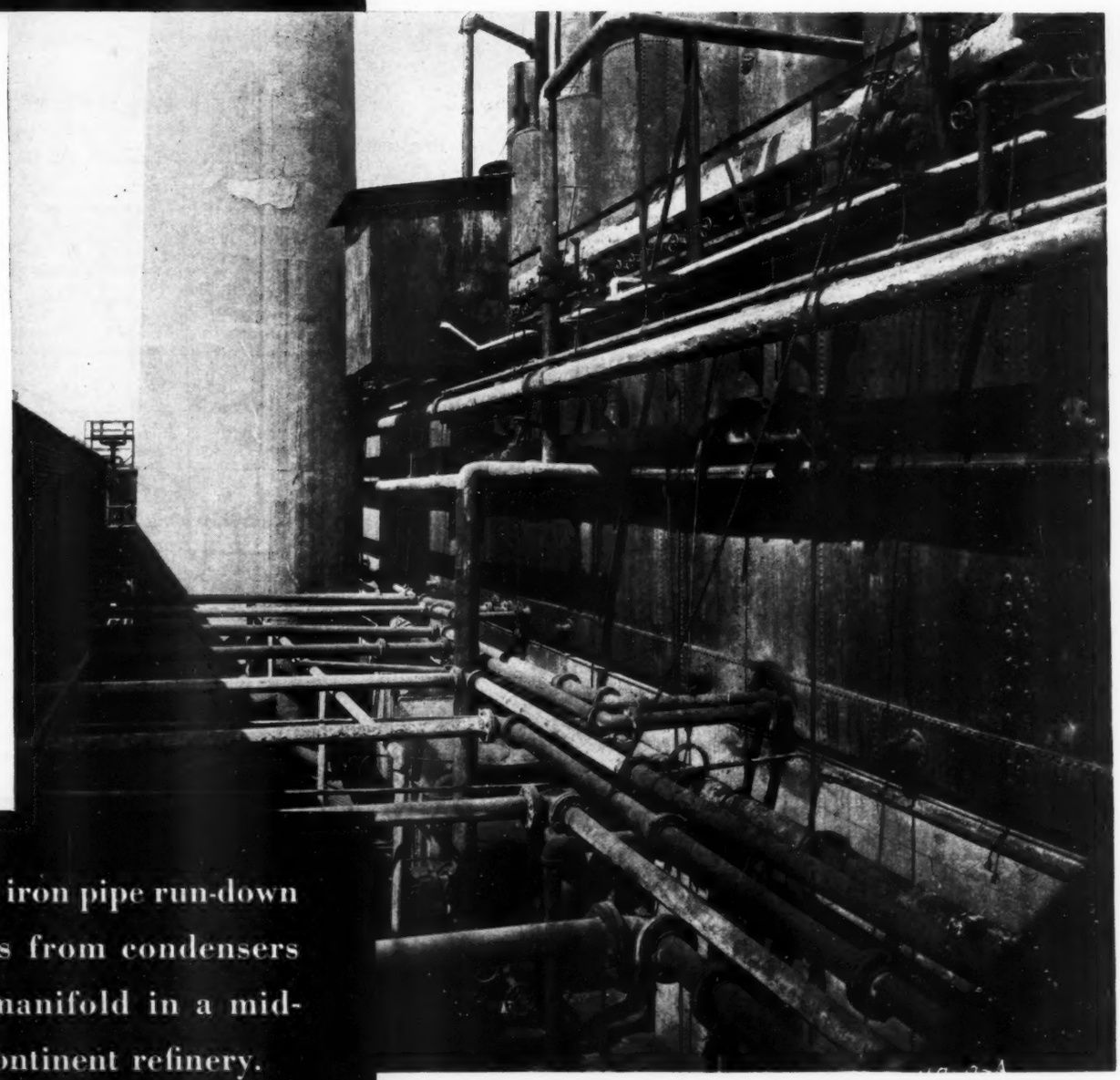
NEITHER lowest nor highest in first cost, cast iron pipe is usually the cheapest in the end for many refinery applications. Nearer to the natural element than any other ferrous material, its resistance to corrosion is inherent. Cast iron pipe is a dependable, long-lived, relatively low first-cost material with a definite salvage value. Measured by length of service and maintenance it is an economy factor in refinery operation. Available in bell-and-spigot, plain or threaded end, and flanged types, or with bottle-tight mechanical joints for high pressures. Diameters from 1¼ to 84 inches. Address inquiries to The Cast Iron Pipe Research Association, Thomas F. Wolfe, Research Engineer, 1015 Peoples Gas Building, Chicago.



Cast iron pipe run-down lines from condensers to manifold in a mid-continent refinery.

Selection of Steel for High Temperature Service

By MARTIN FLEISCHMANN
Metallurgical Engineer of Steel and Tube Division, Timken Roller Bearing Co.*

The problem of selecting economical steels for use at high temperatures requires not only a knowledge of the strength and stability of the materials under stress at high temperatures, but is intimately linked up with the resistance of these steels to corrosion and oxidation.

Strength of Steels at Elevated Temperatures

While standard tensile tests of steels furnish reliable data to the engineer on which to base the design of construction for use at normal temperatures, the testing of steels at elevated temperatures presents an extremely complex picture which defied standardization and produced data which in many cases reveal an apparent lack of agreement between different laboratories. The

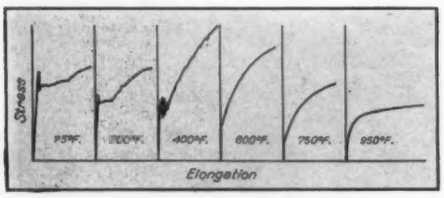


Figure 1

behavior of a low carbon steel at increasing temperatures is graphically indicated in the stress-strain diagrams of Figure 1. At room temperature all types of steels may practically be considered elastic bodies, if stressed below their proportional limit. A stress applied will result in a definite elongation and regardless of the length of time this load is maintained, the deformation will remain constant.

At elevated temperatures steels lose their elastic behavior and become distinctly plastic. This condition is schematically indicated in Figure 2. This sketch shows that a load applied at elevated temperature results in an initial deformation, but unlike the condition at room temperature, this deformation continues with the time of load application. This increase in the elongation of metallic materials with time under a constant stress is what is more commonly known as "creep." Curve No. 4 indicates the three stages of creep. In the first stage creep occurs at decreasing rate; in the second, at an approximately constant rate and in the third and final stage, at an increasing creep rate. Present time creep data are usually obtained at loads and temperatures which will produce curves similar to No. 2 and No. 3. The third stage of creep is not entered.

It may be mentioned here that the duration of the second and the entering of the third stage of creep not only depends upon the stress employed at a given temperature, but is also materially affected by the corrosion and scale resistance of the material under test.

Most engineers base the design of high-temperature constructions upon the creep strength of the materials. The creep strength customarily is expressed as the stress which produces creep at rates of 1 per cent per 10,000 or 1 per cent per

W. P. R. A. — Presented at Regional meeting held in Shreveport, La., October 15, 1937

100,000 hours. To determine the creep strength of steels, long-time loading tests with varying stresses must be made and the resulting elongations measured accurately. Optical extensometers capable of reading to about three-millionths of an inch are employed in our testing equipment. Usually four different stresses are used for each material at each temperature. Typical time elongation curves thus obtained are shown in Figure 3. By plotting the rates of creep on logarithmic coordinates against the stresses required to produce them, an approximate straight line relationship often results as shown in Figure 4. Creep rates of 0.01 per cent in 1,000 hours and 0.10 per cent in 1,000 hours may now readily be taken from this logarithmic chart.

A creep rate of 0.10 per cent per 1,000 hours frequently is considered equivalent to 1 per cent in 10,000 hours and 0.01 per cent per 1,000 hours equivalent to 1 per cent in 100,000 hours. However, it should be kept in mind that few of the creep data obtained up to the present time have been conducted for times exceeding 1,000 hours, or about six weeks. How the time of test may influence the

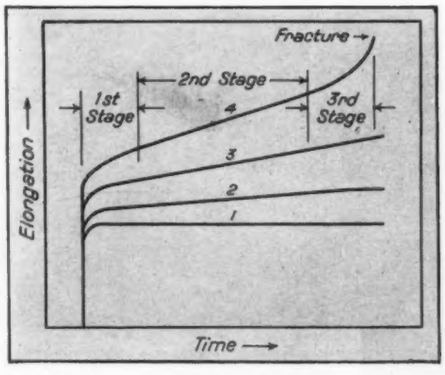


Figure 2

observed creep rate is illustrated in Figure 5. This graph reveals that a stress of 22,000 pounds which produced a creep rate of 0.10 per cent after 1,000

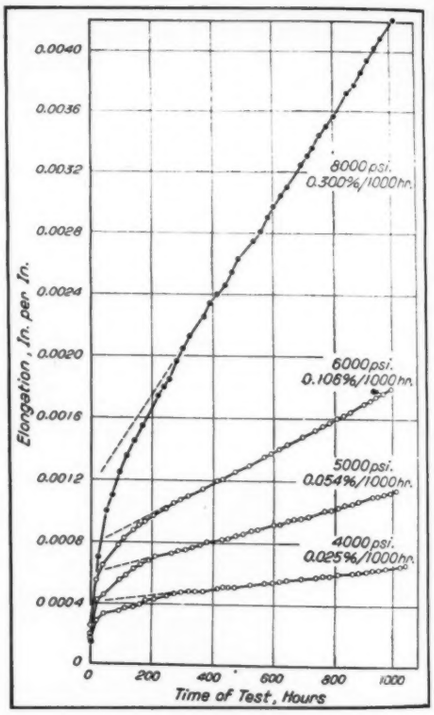


Fig. 3—Time-elongation curves at 1,100° F. for 4-6 Cr-Mo steel

hours of actual test, resulted in a creep rate of 1 per cent in 1,000 hours after loading for 5,000 hours. This load would ultimately lead to fracture in less than 10,000 hours.

This condition is further illustrated in Figure 6. In this diagrammatic sketch, three steels, A, B, and C, have the same creep strength at a given temperature after 1,000 hours of loading. Steel A, however, will actually rupture in about 11,000 hours, steel B in about 100,000 hours, while the rate of creep for steel C remains constant throughout.

In cooperation with the department of engineering research of the University of Michigan a new testing procedure has been initiated which should throw additional light upon the strength of materials at elevated temperatures. This test procedure consists of stressing specimens at various loads until actual rupture occurs. The loads which lead to rupture are then plotted on logarithmic coordinates against the time elapsed until fracture

*Presented under author's title, "The Selection of Steel for High Temperature Service in Petroleum Refining, Power and Allied Industries."

the New 7-36 GUMBO BUSTER

(JOHNSTON)

125 TON BLOCKS

18"-70 # I-Beam Frame 7'6" long, tied together with 12" 31.8 # I-Beam, welded and bolted so that it may be taken up as a unit or in two pieces. 7" Center Pin designed to hold the beams together at center. 36" chrome nickel, heat treated, cast electric steel sheaves or manganese steel sheaves. Straight Roller Bearings. Weight: 4-Sheave, 2700 #; 5-Sheave, 3100 #; 6-Sheave, 3500 #

Upper Pin, 4" dia Center Pin 7" dia., forged steel, ground and carburized. Lower Pin 5" dia. Bail 3¾" diameter. 36" sheaves. Straight roller bearings. May be strung-up without removing guards Length overall, 86"

Weight: 4-sheave, 4200 #; 5-sheave, 5200 #

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For heavier work and deeper drilling the 8-36, 250 Ton Capacity or the 8-46 Million Pound Capacity Blocks are recommended.

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takes place. Typical stress versus "time for rupture" curves are illustrated in Figure 7. It is interesting to note that the curves drawn in this manner are apparently straight lines, allowing the extrapolation of these laboratory results to time periods equivalent to the commercial life desired. These graphs give the characteristics of the regu-

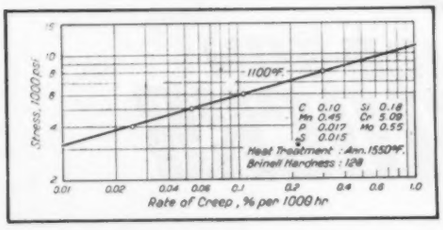


Fig. 4—Creep stress curve at 1,100° F. for 4-6 Cr-Mo steel

lar 4-6 Cr-Mo steel as well as the Sicromo 5 analysis at temperatures of 1,200° and 1,300° F. Breaks appear in the lines of the 4-6 Cr-Mo steel while the curves for the Sicromo 5 material do not deviate from the single straight line. These breaks, apparently are the result of oxidation progressing with prolonged heating times.

There appears to be a definite relation between rupture strength and the creep strength of a material for a given temperature as may be seen from Table 1.

Rupture tests do not require the sensitive extensometers necessary for conducting of creep tests. More economical equipment for determining the high-temperature strength of steels may there-

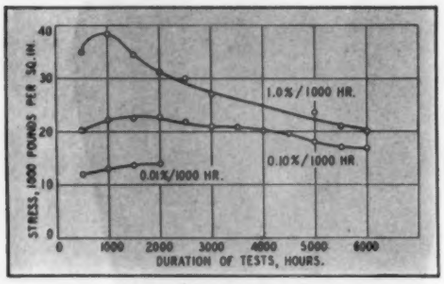


Fig. 5—Influence of duration of tests on reported creep stress, for annealed DM steel at 1,000° F.

fore offer an inducement to other laboratories to obtain information along this line. This would materially help in obtaining more reliable data as to the physical behavior of steels at elevated temperatures.

Effect of Alloying Elements

Twenty years ago plain carbon steel was practically the only material available for still tubes. However, advances in refining practice called for higher and higher temperatures and increasing pressures. To meet these demands alloy steels had to be used and during recent years steel makers have kept pace with the oil industry in perfecting new steels which can be used economically in the modern refining processes. It is interesting to note the effect which various elements have on the high-temperature strength of steels.

Carbon: A common way of increasing the room temperature strength of a steel is by raising the carbon content. The same procedure, however, does not apply to high-temperature material. Figure 8 illustrates the effect of carbon upon the creep strength of a steel containing .50 per cent of manganese. At the lower temperature an increase in carbon to .30 per cent resulted in an increase in strength. No effect, however, could be obtained at the higher temperature by raising the carbon content. Later investigations seem to indicate that not the carbon content, but the form of the carbides in the microstructure of the material, the presence of lamellar or spheroidized pearlite, is a controlling factor in influencing the creep strength of steels.

Chromium is an element added to the majority of high-temperature steels not only for increasing the creep strength but for improving the oxidation and corrosion resistance as well. However, as

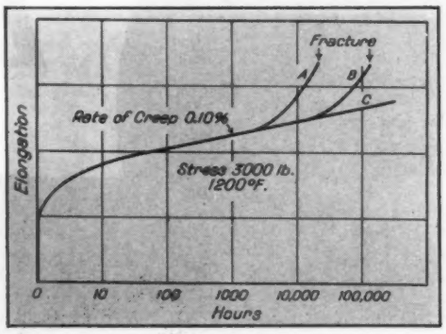


Figure 6

shown in Figure 9, the creep strength is not directly proportional to the chromium content at any of the three temperatures considered. In fact, the maximum occurs at about 1.25 per cent and decreases as the chromium content is either raised or lowered. This relationship, however, may be altered with varying molybdenum content or by the addition of other elements.

Molybdenum, tungsten and vanadium are primarily carbide-forming elements and are in this respect similar to chromium. They increase the creep strength at elevated temperatures as may be seen in Figure 10, which illustrates the effect of molybdenum upon the creep strength of carbon steel at 750° F. and 930° F.

Silicon and aluminum differ from the elements previously considered in that they largely enter into solution in the ferrite. Their direct effect upon creep is negative as they lower the high-temperature creep strength. Indirectly, however, their ability to materially increase the scale and corrosion resistance of the steels may result in higher strength values for long-time loading especially at temperatures exceeding 1,200° F. Figure 11 proves this statement, indicating the effect of 1.5 per cent of silicon upon the creep strength of 4-6 Cr-Mo steel at varying temperatures.

There are other factors outside of chemical composition which may noticeably influence the creep strength of steels.

The melting process, the melting practice, and the casting practice seem to affect the strength of materials at elevated temperatures. Results available indicate that electric furnace steel is superior to the open hearth product, killed steels are superior to those of the open or rimmed type.

The heat treatment should be such that a high degree of structural stability is maintained at a

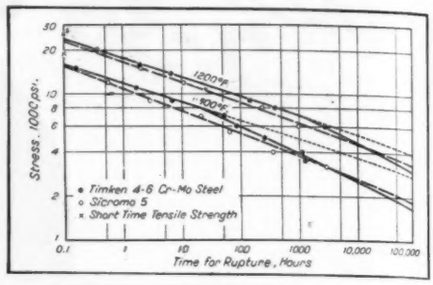


Figure 7

given operating temperature. Annealing in general answers this requirement. Recent tests revealed that a heat treatment which produces coarse ferrite grains increases the creep strength while a complete spheroidization of the cementite lowers the resistance to creep.

Previous cold deformation apparently decreases the creep resistance, probably due to the faster rate of spheroidization of cold worked steel.

In general it may be stated that the ability of a

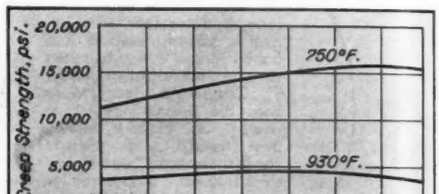


Fig. 8 — Effect of carbon content upon the creep strength of steel with 0.50 per cent Mn

steel to resist creep is a sensitive property, influenced by many factors.

Corrosion Resistance

Although it is possible to improve the strength of materials for high-temperature service, the effects of corrosion and the resulting wastage during the service of an installation may be as important as creep properties in limiting the application of a steel. In fact corrosion resistance is often the first requirement that must be satisfied in the selection of a steel for high-temperature

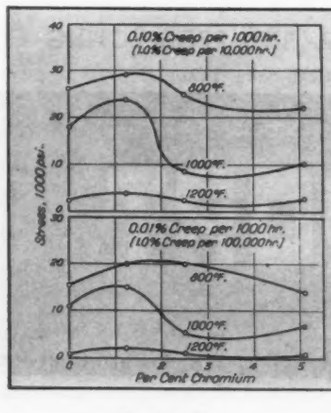


Figure 9

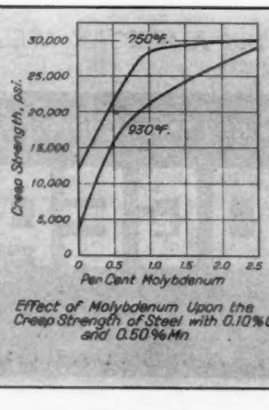

750°F.
930°F.
Creep Strength, psi.
Per Cent Molybdenum
Effect of Molybdenum Upon the Creep Strength of Steel with 0.10% C and 0.50% Mn

Figure 10

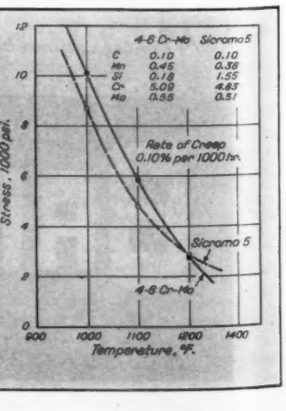


Figure 11

use. Unfortunately laboratory tests are not dependable, because the nature of the corrosion either is not or cannot be reproduced. To study corrosion problems for a reasonably long period, the tests should be conducted on an experimental scale in

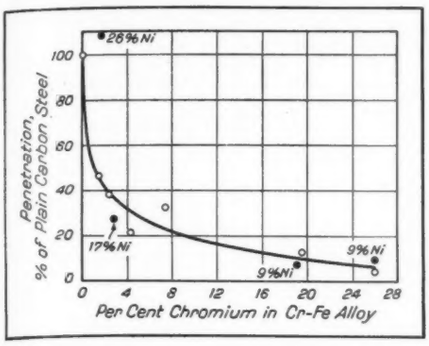


Fig. 12—Relation of corrosion rate and chromium content of steels in cracking tubes

an actual commercial installation. The oil refiners could be of material help in the development of economical alloy steels for high-temperature service by their cooperation in such a testing program.

Effect of Alloying Elements on the Corrosion Resistance of Steels

Carbon: In general an increase in carbon content results in an increase in the corrosion rate. However, this fact sometimes has to be disregarded if a material of good hardenability is desired.

Chromium: The effect of chromium on the resistance to oil corrosion at elevated temperature is shown in Figure 12. According to the data, quite small amounts of this element cause a pronounced decrease in the rate of corrosion. The corrosion rate curve approaches a straight line with chromium additions exceeding 3 per cent, indicating that above this amount of chromium protection against corrosion is proportional to the chromium content of the steel. This graph also shows that additional alloying with nickel has no effect upon the oil corrosion resistance of the material.

Confirming evidence on the corrosion resistance of the plain chromium steels in several classes of refinery service is given in Figure 13. These curves exhibit the same trend as the previous graph, the decrease in the rate of attack being again most marked for additions of chromium up to 2 or 3 per cent. For many applications this amount of chromium may provide sufficient corrosion resistance and would constitute a more economical choice than the regular 4-6 per cent chromium steel.

Molybdenum: The element molybdenum, which is commonly present in steels for high-temperature service, does not significantly affect the oil corrosion resistance of the plain chromium steels. As an addition to the austenitic chrome-nickel steels of the 18-8 type, however, it may materially increase the resistance of these stainless steels, especially against sulfuric acid.

Silicon and aluminum: The addition of silicon or aluminum to the standard chromium steels results in a noticeable increase in their corrosion resistance. While the available data are still limited, service records indicate that a 5 per cent chrome-molybdenum material with silicon and aluminum additions give twice the corrosion resistance of regular 4-6 per cent Cr-Mo steel in oil cracking tubes for refining certain sour crudes.

A moderate increase in the corrosion resistance of chromium steels is obtained by additions of titanium and columbium, since these elements form carbides thereby releasing a certain amount of chromium for the enrichment of the ferrite. Their effect in eliminating the air hardening of the chromium steels, however, is the main reason for adding these elements.

Variations in microstructures do not materially affect the oil corrosion resistance of steel at elevated temperatures, although fully annealed materials generally give best results. Cold working, however, and the internal stresses introduced by it, as for instance in the rolling in of tubes, may result in an increased corrosion rate in the affected portions of the material.

Oxidation Resistance

In the laboratory the oxidation resistance of a material is measured by the weight loss after heating specimens in air for a prolonged period of time. This procedure at best can only furnish relative information. The atmospheres encountered in industrial furnaces usually contain gases like CO_2 and water vapor, which may change the laboratory findings materially. Nevertheless the data furnished by the laboratory should be considered as valuable information expressing trends.

Chromium: Figure 14 shows the effect of chromium content upon the scale resistance of steel at 1,300° F. in air. As may be seen from this graph, the oxidation decreases in steps with increasing chromium content. While chromium additions up to 3 per cent do not materially affect the scale resistance, a marked benefit could be obtained with chromium additions of 4 to 7 per cent. It requires, however, a chromium content of about 10 per cent to obtain commercially non-scaling properties at the given temperature.

Silicon: The beneficial effect of silicon in reducing the attack of furnace gases at elevated temperatures led to the general use of this element as an alloy in heat-resisting steels. Its effect is especially marked in combination with chromium. Figure 15 illustrates the effect of silicon upon a 5 per cent chromium steel. Even a silicon content of .70 per cent produces a marked improvement in the scale resistance and a steel with 5 per cent chromium and 1.5 per cent silicon may be considered as nonscaling at temperatures up to 1,475° F. in air.

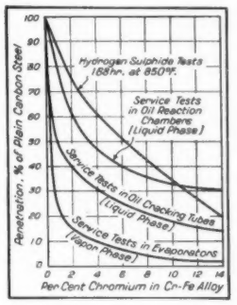

Hydrogen Sulphide Tests 168 hr. at 850°F.
Service Tests in Oil Reaction Chambers (Liquid Phase)
Service Tests in Oil Cracking Tubes (Liquid Phase)
Service Tests in Evaporators (Vapor Phase)
Penetration, % of Plain Carbon Steel
Per Cent Chromium in Cr-Fe Alloy

Fig. 13 — Service and laboratory tests on the corrosion of a series of 15 Cr-Fe steels

Aluminum: The effect of aluminum upon the scale resistance of steels is similar to the effect of silicon. Figure 16 illustrates the increase in oxidation resistance obtainable with aluminum additions to 5 per cent chromium-molybdenum steel. Aluminum furthermore raises the transformation range of the steel and materially reduces air hardening, acting in this respect in a manner similar to titanium or columbium. Figure 17 shows the effect of aluminum additions on the hardness of a 5 per cent chromium-molybdenum-silicon steel and also indicates to what extent the transformation temperature of the material is raised.

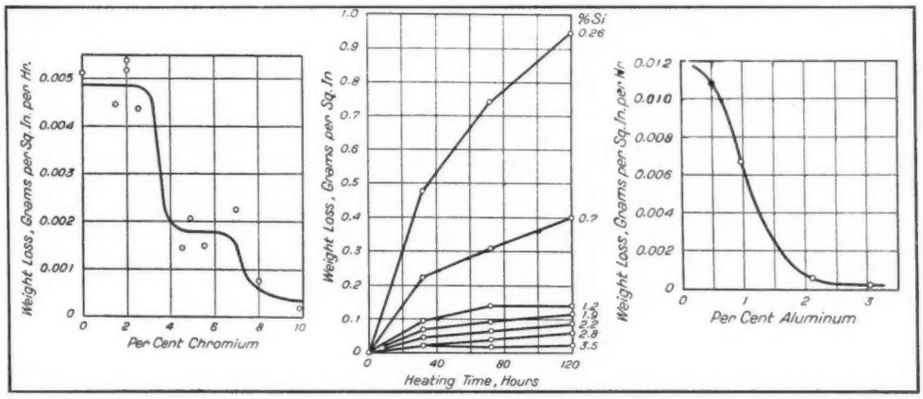


Fig. 14—Effect of chromium content upon the scale resistance in air at 1,300° F. Heating time 120 hours. Fig. 15—Effect of silicon upon the scale resistance of a 5 per cent Cr steel at 1,475° F. in air. Fig. 16—Effect of aluminum content upon the scale resistance of 5 per cent Cr-Mo steel in air at 1,475° F. Heating time 120 hours

TABLE 1 — RELATIONSHIP BETWEEN CREEP AND STRESS-RUPTURE CHARACTERISTICS FOR SICROMO 5 STEEL AT INDICATED TEMPERATURES

Temp. deg. F.	Creep strength 0.01% per 1,000 hrs.	Rupture strength fracture in 100,000 hrs.	Ratio of creep strength to rupture strength
1,000	5,450	10,000	0 545
1,100	2,600	5,400	0 481
1,200	1,600	3,150	0 508

TABLE 2 — REFINERY SERVICE RECORDS ON VARIOUS STEELS

Steel—	Carbon	Manganese	Silicon	Chromium	Molybdenum	Nickel	Max. service temperature
Carbon (killed)	08- 18	.30- 60	.25 max.	.....	.....	.....	900°F.
C-Mo	08- 18	.30- 60	.25 max.	.....	.45- 65	.....	1,000°F.
Silmo	15 max.	.30 max.	1 15-1 65	.....	.45- 65	.....	1,100°F.
DM	15 max.	.30- 60	.50-1 00	1 00- 1 50	.45- 65	.....	1,100°F.
2 Cr-Mo	15 max.	.30- 60	.50 max.	1 75- 2 25	.45- 65	.....	1,200°F.
Sicromo 2½	15 max.	.50 max.	.50-1 00	2 25- 2 75	.45- 65	.....	1,200°F.
5 Cr-Mo	15 max.	.50 max.	.50 max.	4 00- 6 00	.45- 65	.....	1,200°F.
Sicromo 5	15 max.	.50 max.	1 00-2 00	4 00- 6 00	.45- 65	.....	1,300°F.
18-8 (KA_2S)	07 max.	.50 max.	.75 max.	17 00-19 00	.....	8 00-10 00	1,300°F.

Toughness of Materials

Steels for high-temperature service should be tough. In fact, one of the first requirements to be met by materials for service in oil refineries is the absence of brittleness. Good initial ductility at room temperature does not always assure satisfactory toughness after prolonged service at operating temperatures. This condition is illustrated in Figure 18, which shows the influence of time of heating under stress at 1,000° F. on the ductility of S.A.E. 1015 steel. The material which exhibits excellent values for elongation and reduction of area in the short-time tensile test loses considerable ductility after prolonged heating. These values have been determined from rupture tests, previously discussed. The rupture test therefore also affords the best means available for determining the

ductility properties of steels under the combined action of stress, time, and heating. Figure 19 shows a comparison in ductility values of the regular 4 to 6 per cent chromium-molybdenum steel and the same composition with 1.5 per cent silicon at 1,200° F., indicating that due to the higher scale resistance of the silicon steel its high ductility is retained for prolonged times under stress at elevated temperatures, while intercrystalline oxidation materially reduced the toughness of the regular 5 per cent Cr-Mo analysis. In the same graph the change in ductility values for the stainless KA$_2$S steel at 1,300° F. is illustrated. Here carbide precipitation and the resulting grain boundary attack lowers the toughness of the material to such an extent that failure under pressure without previous warning—that is, without bulging of the tube—may be expected and is actually experienced. This condition is frequently referred to as "tensile brittleness."

Plain chromium, chromium-silicon, and chromium-tungsten steels are susceptible to temper embrittlement after heating in service. The addition of molybdenum, about .50 per cent, effectively eliminates the temper brittleness of 5 per cent chromium steel.

Titanium and columbium are added to the 4 to 6 per cent chromium type steel primarily to prevent air hardening. It should be recognized, however, that these elements may promote grain-growth and lead to a structural condition possessing lower toughness.

Few steels are disqualified for high-temperature service because of these shortcomings, although precautions have to be taken in handling some of the compositions to avoid circumstances conducive to brittleness.

Commercial Steels

A large number of high-temperature steels are on the market today which have been built up from the plain low-carbon steel by the addition of the alloying elements previously discussed. Table 2 gives a selected number of steels, their composition and maximum service temperature for oil refining equipment.

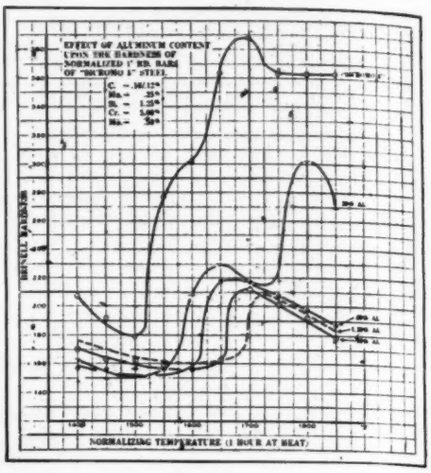

EFFECT OF ALUMINUM CONTENT
UPON THE HARDNESS OF
NORMALIZED 1" RD. BARS
OF "SILMO 5" STEEL
BRINELL HARDNESS
NORMALIZING TEMPERATURE (1 HOUR AT HEAT)

Figure 17

The scale resistance, creep strength and initial cost of these compositions are shown in Figure 20. The designing engineer must balance oxidation and corrosion problems as they apply to the particular job at hand with creep strength and first cost. As previously discussed the oil corrosion resistance of a steel mainly depends on the chromium content of the material. This resistance may further be increased by silicon and aluminum additions.

Likewise the oxidation resistance of a steel is mainly controlled by these same three elements. It also should be realized that the extended load-carrying ability of materials at elevated temperatures is materially influenced by the resistance of the steel against scaling.

While the addition of .50 per cent of molybdenum to plain carbon steel results in satisfactory creep strength up to 1,100° F., the scale and corrosion resistance has not been altered. Silmo is a carbon-molybdenum steel with increased silicon content. Its oxidation resistance approaches that of the 5 per cent Cr-Mo steel. However, its oil corrosion resistance is not much better than that of carbon steel. Silmo may be used to replace carbon steel where greater safety is desired, or as a substitute for carbon-molybdenum where oxidation is a problem. Its creep strength is about twice that of carbon steel at 900-1,100° F.

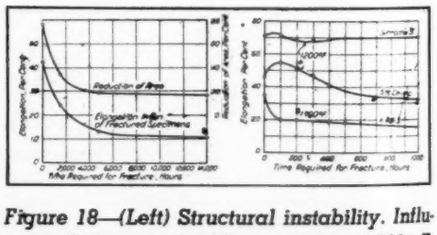
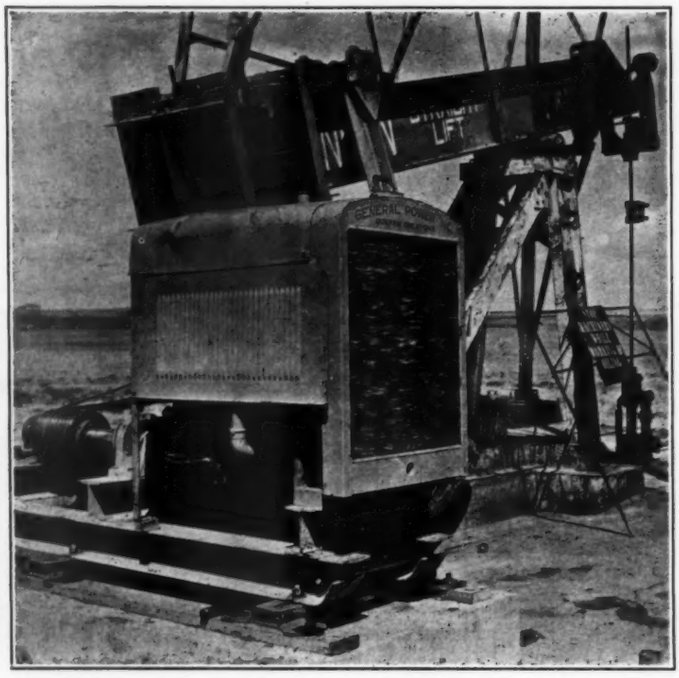


Figure 18—(Left) Structural instability. Influence of time required for rupture at 1,000° F. on the ductility of 1015 carbon steel. Fig. 19—(Right) Time required for fracture, hours

Chromium additions of 1.00-1.25 per cent produce a maximum effect upon creep strength in the temperature range 800-1,100° F. This chromium content is used in the DM steel. It excels in creep strength all other intermediate alloy steels up to 1,100 °F. Its oxidation and corrosion resistance is approximately two to three times that of plain carbon steel.

Additional oxidation and corrosion resistance



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is offered by a series of Sicromo steels, of which the Sicromo 2½ is given as an example. The Sicromo 1, 2 and 3 steels, the numbers designating the chromium content, also are intermediate molybdenum steels between DM and the 4-6 per cent chromium alloys. In some liquid and vapor phase applications the rate of corrosion of these steels is nearly as low as in the 4-6 per cent Cr-Mo steel and their oxidation resistance is distinctly better.

The 4-6 per cent Cr-Mo steel has been used extensively in the oil industry. Service data indicate that tubes made from this steel will last approximately five times as long as plain carbon tubes in cracking still service.

Considerable improvement over this performance of the 4-6 Cr-Mo steel may be obtained by adding 1 to 2 per cent silicon to this steel as an additional alloy as is the case in the Sicromo 5 composition. This material has an oxidation resistance in air similar to 18-8 steel up to 1,500° F. Its corrosion resistance and creep strength compare favorably with 4-6 per cent Cr-Mo steel.

Where maximum creep strength plus corrosion and scale resistance at elevated temperatures is demanded, the austenitic stainless steels still offer the best combination of these properties. However, their high thermal coefficient of expansion frequently complicates design and their high initial cost may prove uneconomical as the relatively rapid advance in refining technology may make an

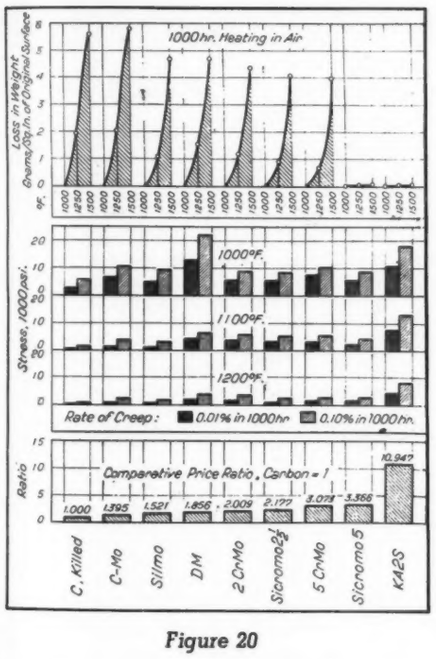

Figure 20

installation obsolete before the economic value of equipment has been obtained. Their objectionable tensile brittleness has been overcome by stabilizing the alloy with titanium or columbium and their creep strength and corrosion resistance has been further increased by the addition of 2 to 4 per cent of molybdenum. This latter composition, developed in our laboratory, may now be obtained in the form of seamless tubes and is marketed as "16-13-3," a composition of 16 per cent chromium, 13 per cent nickel and 3 per cent molybdenum.

Selecting steels for high-temperature service requires an understanding of the factors influencing corrosion resistance, oxidation resistance, and strength of materials. Maximum efficiency and economy may frequently be secured by selecting different steels for different locations in the same furnace. No one steel is most suitable for all applications.

Best performance with economy may be obtained by cooperation. The steel producer, the designer, and the operator should all work hand in hand in solving the technical problems of present-day high-temperature construction.

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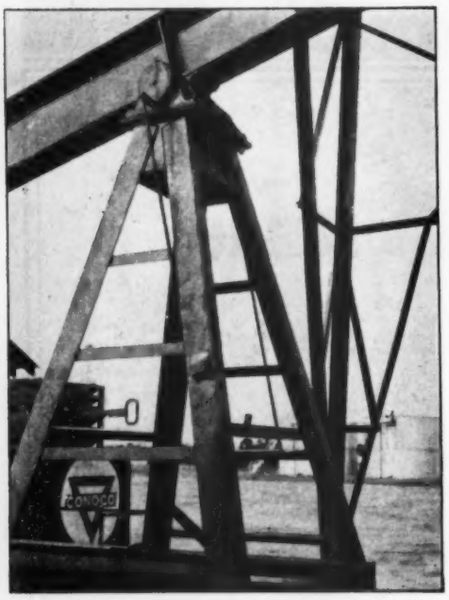
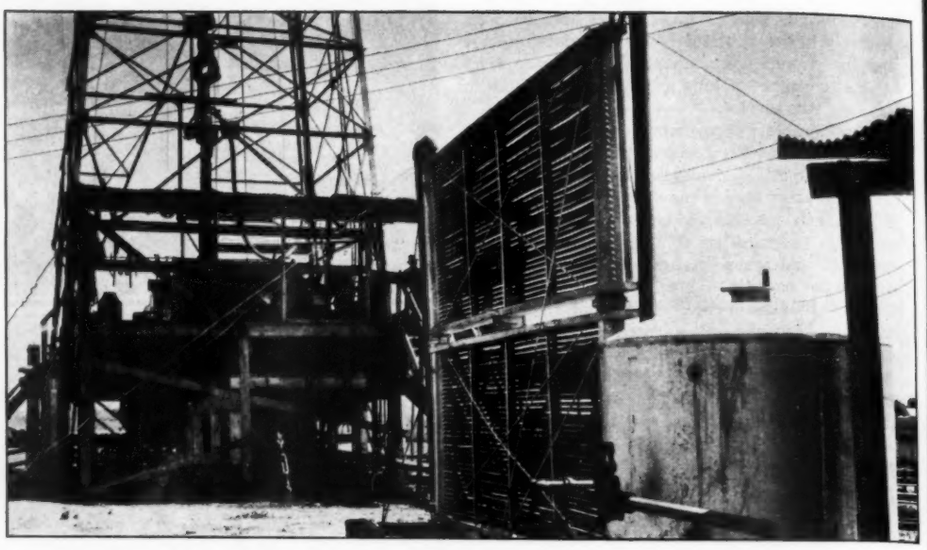
OPERATING IDEAS

Lubricating Pump Unit



All geared pumping units on the market today require the operator to climb the unit each time he desires to oil the jack-post bearing or the pitman. To do away with this inconvenience an operator in the Jessie pool of Oklahoma extended one-quarter inch lines from the bearings to within 3 feet of the floor. Each line is equipped with a fitting so that by using a pressure gun the operator can lubricate all bearings from the floor. This eliminates chance of the pumper falling while lubricating the unit, and also saves time.

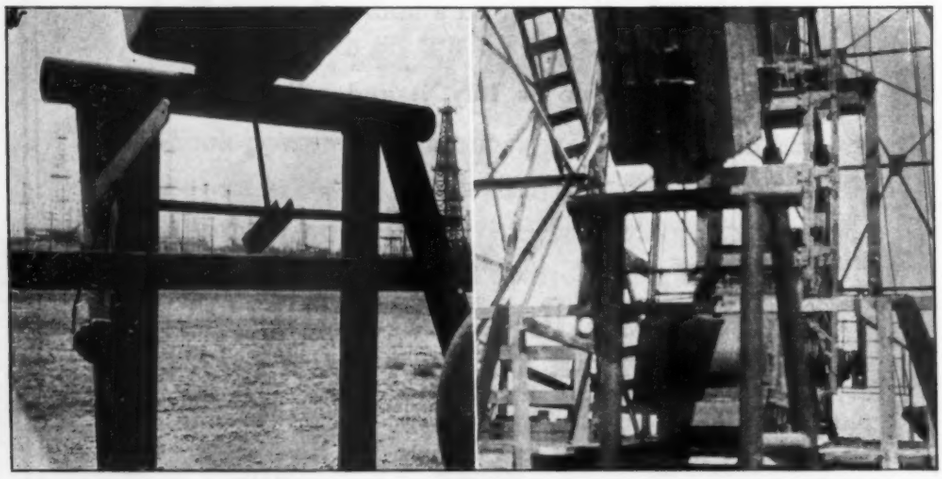


Coils for Condensing Exhaust Steam on Drilling Rig

In Coal County, Oklahoma, a major oil company drilling a deep test has effected a great savings in water consumption by passing the exhaust steam through two series of coils before it is passed to an accumulator where it is picked up by the feed-water pump. The coils consist of a single row of tubes, welded into a header of the type used in cooling towers. The sections are 12 feet long and 6 feet high, thus allowing the steam to travel considerable distance before it reaches the receiving vessel. This method, which effects about 20 per cent savings in water, was designed and constructed by company engineers.

Heavy-Duty Truck Derrick

For installing pumping units and in other operations where it is necessary to handle heavy equipment one California oil company has mounted a sturdy mast on a heavy truck. It is believed that loads of 4 or 5 tons can be moved with this equipment, and greater loads can be lifted if the truck is blocked up.



Safety Throw-Out Switch on Electric Pumping Wells

A major oil company operating several electric pumping wells in the Dominguez field of California has found that if the rods should part or the polish rod break, in many instances the motor would run away and tear up the unit. Therefore, to prevent this happening the company installs a small rod, that clears the down-stroke of the beam about one-half inch, at the extreme end of the walkingbeam where the counterbalance is placed. When the rods part or a break occurs, the beam strikes the rods and throws the switch, cutting off power to the motor.

Development and Geologic Relationship of the Appalachian Fields

By GEORGE H. ASHLEY
State Geologist, Harrisburg, Pa.

This paper assumes that the members of the association know all about the theoretical origin and distribution of oil and gas but nothing about the occurrence of oil and gas in the Appalachian region.

Figure 1 shows the horizontal distribution of the known oil and gas fields of the Appalachian region which center about the geosyncline between the Appalachian uplift and the Cincinnati-Nashville arch. Note that the oil occurs in a narrow belt and the gas in a somewhat broader belt, as well as the obvious petering out of the oil and gas toward the southwest. The oil fields increase in size and productiveness toward the northeast, the most productive field of all being at the extreme north end of the region on and near the New York state line.

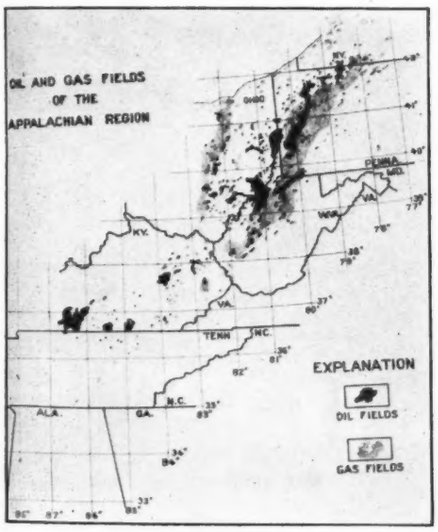


Figure 1

In vertical distribution, the oil comes from sands (some of which are limestone) ranging in age from the Middle Coal Measures down to the base of the Upper Canadian or Stones River, the bulk of the oil coming from rocks of the Devonian age.

Figure 2 shows roughly the surface distribution of the oil sands according to age. Considerable oil has come from the Pennsylvanian of Ohio and West Virginia, especially from the Pottsville sandstones, though sandstones of Allegheny and Conemaugh age have supplied some oil. Oil of Pennsylvanian age is naturally confined to the center of the geosyncline, as away from that center these rocks all rise above drainage. The Mississippian oil sands cover the largest area but only locally have sands of this age been the principal producers. Much of the Mississippian production has come from the Berea sandstone at the very base of the system. This sandstone, usually not over 50 feet thick, has been traced, it is thought, from Lake Erie to the south end of Tennessee, being only 1 or 2 inches thick in eastern Tennessee, and of course not there an oil producer.

A.A.P.G. **— Presented before American Association of Petroleum Geologists, Pittsburgh, Pa., Oct. 14-16, 1937**

Devonian production is found in two areas, one stretching from southern New York to the middle of West Virginia and including many sands; the other covering a small area in southeastern Kentucky, and including only one sand. As a principal source of oil in the Appalachian field, this system will come up for more detailed study later. A little oil and much gas has come from the Silurian, mostly from the basal sandstone, the Tuscarora of Pennsylvania, or the Clinton of Ohio. Sands of probable Niagaran age have produced oil in Kentucky and Tennessee. The Ordovician and Upper Canadian have produced meager amounts of oil in Tennessee and Kentucky.

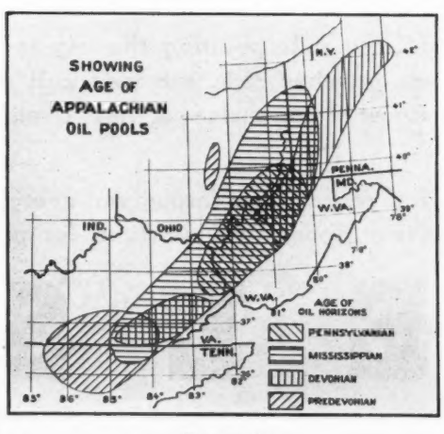


Figure 2

With these general facts before us, several questions naturally arise, possibly all summed up in one: Why is the oil and gas of the Appalachian region confined to the areas and to the strata in which they have been found?

Figure 3 presents broadly a picture of the occurrence of oil and gas in the vertical section of strata in the northern part of the field. Note first that in the northern part of the field no oil or gas older than the Silurian (some Trenton oil has been found on the south edge of the Adirondack region but not of commercial importance) has been found and that the bulk of the oil has come from about the middle of the Upper Devonian and higher, though gas has come from the basal Devonian in New York, northern Pennsylvania, West Virginia and eastern Ohio. Note especially the thinning of the strata from east to west. The Silurian, Devonian and Mississippian which are nearly 12,000 feet thick in central Pennsylvania, and still thicker further east, are only 3,500 feet thick in eastern Ohio and about 2,000 feet in central Ohio.

Figure 4 shows more in detail and on a larger scale the principal oil and gas sands found: (1) In the Bradford field; (2) in the western Pennsylvania fields in general; (3) in southeastern Ohio. One reason for the lack of higher sands in the Bradford field is the northward rise which has carried the Pennsylvanian into the air and second because pre-Pennsylvanian erosion at the north and west removed all of the Mauch Chunk in that direction and the top of the Pocono. Indeed all of the Pocono is gone in the Olean region of southern New York, the basal Pennsylvanian lying on the Upper Devonian.

In the Pittsburgh general area there are, as indicated, many producing sands, the deeper sands as a rule producing only gas. In eastern Ohio the Devonian sands have all disappeared, being replaced by shale and limestone, except the Oriskany which is very thin and spotty, and a small area of the Third sand in the northeast corner of the state.

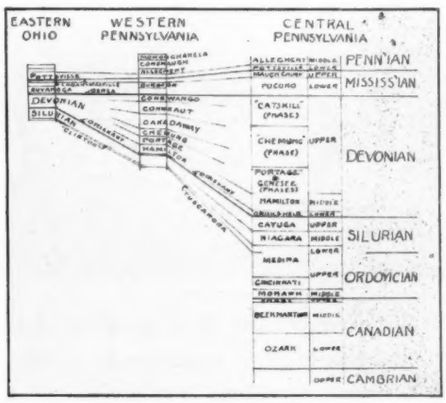
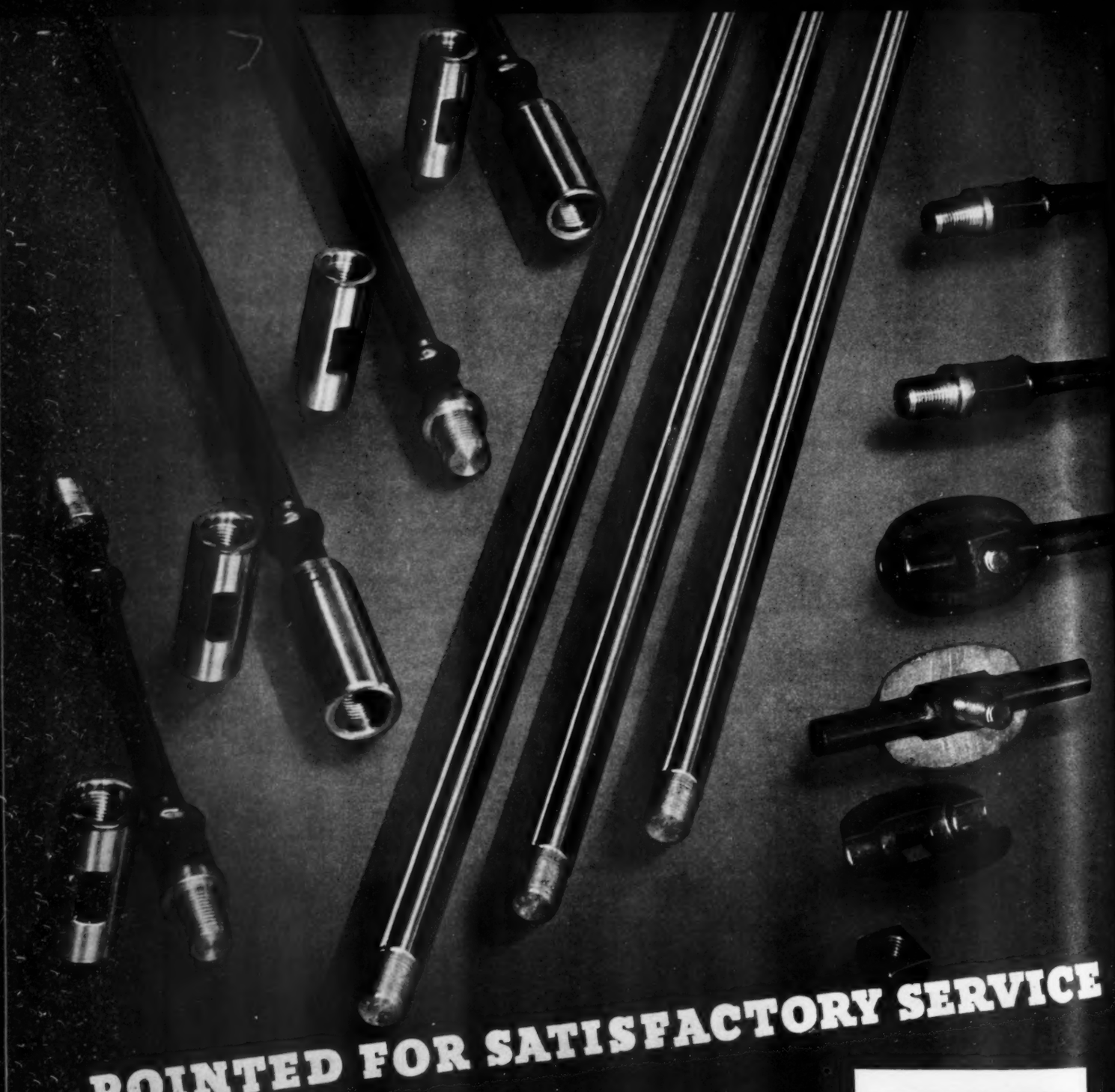


Figure 3

The Tuscarora (Clinton) at the base of the Silurian is a large producer in central Ohio and has produced some oil. The oil production therefore in eastern Ohio has come mainly from the Berea and higher sands. The Berea, which is very persistent over all of southeastern Ohio, has



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probably been the principal producer.

Figure 5 attempts to portray without reference to rock thickness, and only crudely, as many matters of correlation are still unsettled, the changing conditions under which the rocks were laid down, conditions that largely determined the occurrence of oil and gas source rocks. Note in general the continental facies of most of the beds at the east, grading westward through sandy shore deposits, shaly offshore deposits, to limestone and black shale of deep sea origin at the west. Obviously here we had a succession of sinking seas feeding from the east, in which the shore line tended gradually to move westward, carrying the successive phases of sedimentation further and further west as time passed.

At the east, in each instance, we had land deposits subject to areal exposure that oxidized any plant or animal remains, as it did the iron compounds, turning the rocks red. Then, west of that, sandy deposits (Chemung phase) consisting of alternating sand and mud, teeming with life. Further west waters were receiving only the finer deposits (Portage phase) and still further west a sargasso sea, with black slime bottom, fertile material for the production of oil and gas, but no coarse grained, porous rocks to serve as reservoirs. Exceptions are found in the Tuscarora sandstone which stretched west to a north-south line through central Ohio where it has been a great source of gas; the Oriskany, which extends west into Ohio but is only locally present and commonly thin, and the Berea which appears to have come from the west or north and thins out to the east. It is thus obvious that regardless of subsequent folding the character of the rocks has been a limiting factor in the distribution of oil and gas in this area, and the limiting factor on the west side of the axis of the fields.

Shifting southward to the boundary between Tennessee and Kentucky and Virginia, we find the same striking thinning of the post-Ordovician strata from east to west accompanied by the same tendency of the sandy beds to thin out westward to be replaced by shale and limestone. This is shown in Figure 6, and in Figure 7 by larger scale drawing the sections at Bristol, Overton and Pickett counties make these changes clearer.

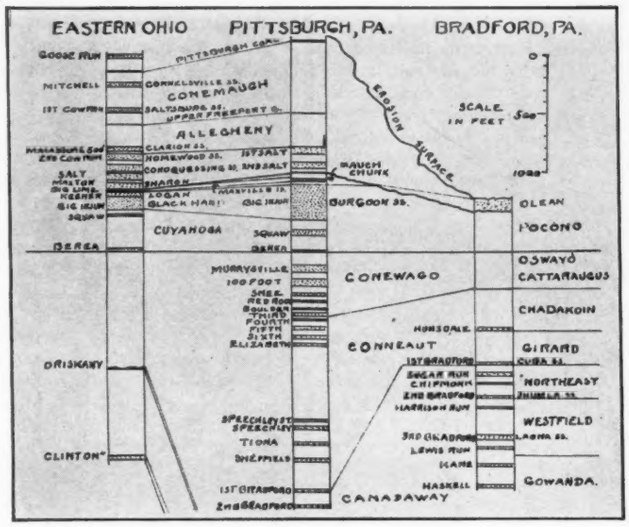

Figure 4

The thinning of the Devonian through the Appalachian region is shown in another way in Figure 8, by the use of isopachous lines or lines of equal thickness. It has been supposed that these deposits represented a vast delta or deltas laid down in the Devonian sea and thinning to a feather edge against the Cincinnati-Nashville arch, finally represented at the west by only a few feet of black shale or none.

We have now had presented two reasons for the limitations of the Appalachian oil and gas fields to the narrow belt previously shown and for the lack or meagerness of the deposits toward the southwest, namely, the thinning of all the beds to the west and south and particularly the disappearance of the sandstone, to serve as reservoirs. In the second place at the east the presence of thousands of feet of continental beds in which conditions for the preservation of oil and gas production substances were unfavorable, accounts in part for the lack of oil or gas deposits in that direction.

There still remains to be considered the results of the action of mountain building forces on the occurrence and distribution of oil and gas. The "Grand Push" occurred at the end or toward the latter part of Carboniferous time. In the axis of the Appalachian Basin of sedimentation 25,000 to 30,000 feet of sediment had accumulated. We are not concerned here with the nature of the push but only with the results. It has been estimated that this vast body of sediments, amounting in Pennsylvania alone to more than 250,000 cubic miles, was shoved westward until narrowed by 100 to 200 miles. At the east the strata were not only folded but crushed and crumpled and even metamorphised into schist, marble, slate and quartzite. The coal beds involved in the upper part of the mass were devolatized in the east into anthracite and farther west into low volatile coals, becoming high volatile coals only in the northwest part of Pennsylvania and a belt running southwest from that. The black shales of the Appalachian region when distilled may yield one-half barrel of oil to the ton at the west but reveal only carbon at the east; so obviously any oil-producing material at the east was completely dissipated to leave only the pure carbon residue. Arthur Keith has suggested that the present Allegheny Front was about at the line of the western edge of the early Cambrian sea and may have therefore formed a buttress against which the "Grand Push" was naturally halted, a sort of Hindenberg line.

Beyond that line, pressure and folding was less severe and gradually faded out in central Ohio, Kentucky and Tennessee. But notice that apparently the "Grand Push" moved somewhat crosswise on the original lines of sedimentation, which ran more clearly north and south, as suggested by the isopachous lines in Figure 8. As a result the stratigraphic conditions, as found in western Pennsylvania, which were favorable for the occurrence of oil and gas, when traced southward (not southwestward) quickly run into the area of more intense folding and in West Virginia cross the Allegheny Front and become involved in the folding and faulting, uplift and subsequent erosion, characteristic of the area east of the Allegheny Front; so that the area of eastern Kentucky and east central Tennessee, where structural conditions are favorable for the occurrence of oil and gas, contain only deep-sea black shale and limestone, corresponding to the rocks of Ohio and eastern Indiana. It is to be remembered that the Nashville dome and to a lesser extent the Cincinnati

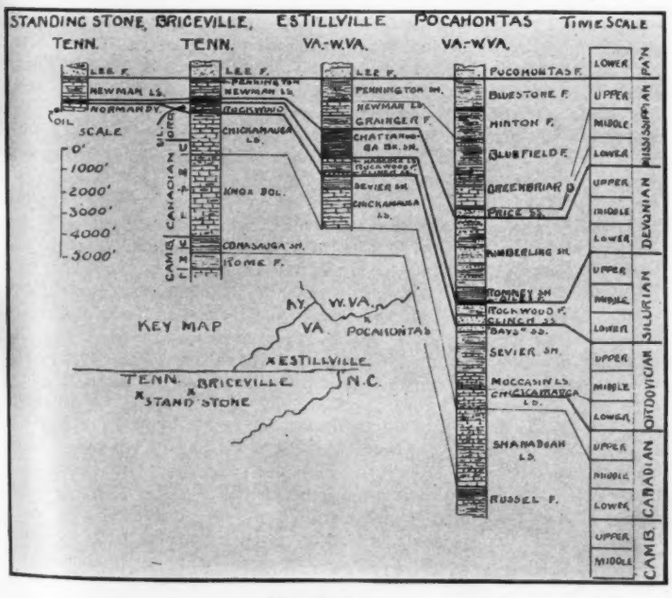

Figure 5

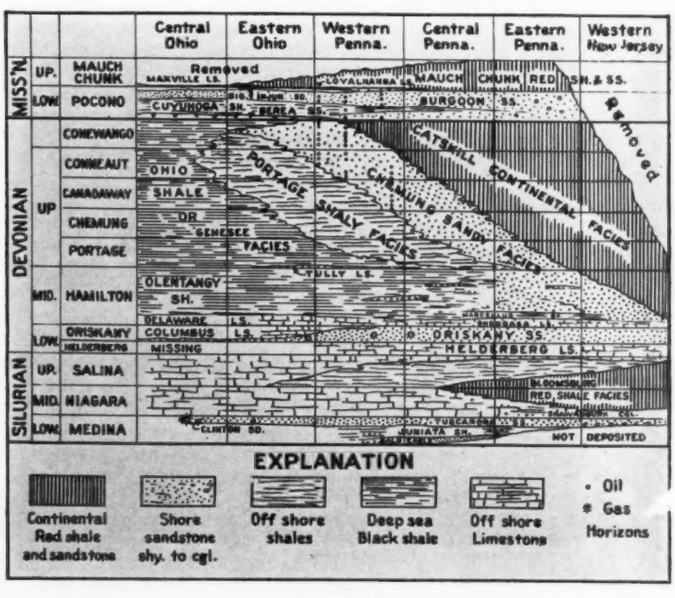

Figure 6

arch, had been positive elements during a large part of Paleozoic time so that the various series and groups tended to thin over them or to feather out against them. The relation of the present oil fields to the isocarb lines is shown in Figure 9.

Practically all of the oil fields are in the area under isocarb 65. As a matter of fact most of the fields indicated near that isocarb have been very small, some of them classed as not commercial. Most of the fields occur in the arch below isocarb 60. Natural gas occurs abundantly below isocarb

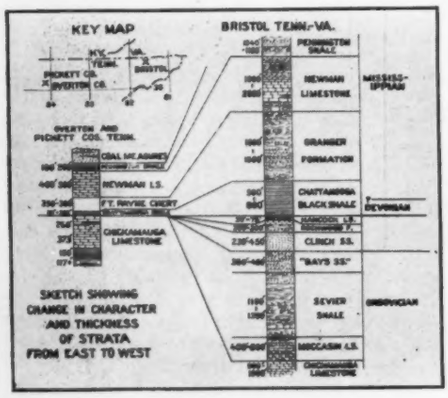

Figure 7

65, less abundantly in the area between isocarb 65 and 75 and a little gas occurs above isocarb 75, as in the central part of Somerset County.

A feature that must not be overlooked in this general connection is that the isocarbs move westward with depth. Probably that accounts for the absence of oil in quantity in Pennsylvania below depths of 3,000 feet though gas is found at a depth of 7,000 feet or more. There have been a few exceptions, notably the W. L. Burdette well in the Oriskany in Kanawha County, West Virginia, which got oil at 4,822 feet, and oil has been found at depth in central Ohio.

Having briefly outlined the geologic conditions that have determined the horizontal and vertical distribution of oil and gas in the Appalachian region, let us review with equal brevity the discovery and development of these deposits, even though it be an oft-told tale.

The Indians are generally credited with having known and used crude petroleum for rheumatism and other ailments before the coming of white men. Father de la Roche d'Aillion mentioned their possession of it in 1627. Some of this oil doubtless came from the oil spring in Cuba sandstone (First Bradford sand) at Cuba, Allegheny County, New York, which was mentioned in 1656 and again in 1721 by other French Jesuit missionaries.

The oil spring of Oil Creek near Titusville was known to white men as early as 1750 and a little later oil was obtained in quantity by soaking and wringing out blankets. This oil like that from Cuba was sold as "Seneca oil" for medicinal purposes. Oil seeps and gas springs were known throughout the Appalachian region and early in the nineteenth century a search for salt revealed many other sources. An attempt in 1806 to increase the supply of salt water from the salt springs near the mouth of Campbells Creek above Charleston, W. Va., by David and Joseph Rufner, led to the development of drilling tools and casing, at first of wood, later of metal. Later drilling was improved by the invention of jars by William Morris in 1831. Drilling for salt spread rapidly and most of these wells in the Ohio and Kanawha Valleys yielded some oil and gas, so much so that for a long time the Kanawha was known as "Old Greasy." In 1814 a well drilled in Duck County, West Virginia, struck oil at 475 feet which flowed 30 to 60 gallons at each eruption and was still flowing a barrel a week in 1833. In 1815 gas was struck within the limits of Charleston, W. Va.; in 1818 drilling for salt at McCreary County, Kentucky, struck oil, and in 1820 a well drilled for salt on the Obey River, Tennessee, flowed oil until the river was covered with oil, which later caught fire and produced some bonfire. Again in 1837 another salt well on the Obey River 4 miles below the mouth of Wolf Creek struck a large flow. Writing in 1826 in the American Journal of Science, Dr. S. P. Hildreth wrote that as early as 1814 drilling for salt encountered gas that threw the water 30 to 40 feet out of the well and that wells drilled in Washington County to depths of 400 to 500 feet invariably struck gas, and two wells in Guernsey County discharged vast quantities of "petroleum or Seneca oil." He noted that this oil sold for a profit for use in lamps, yielding a

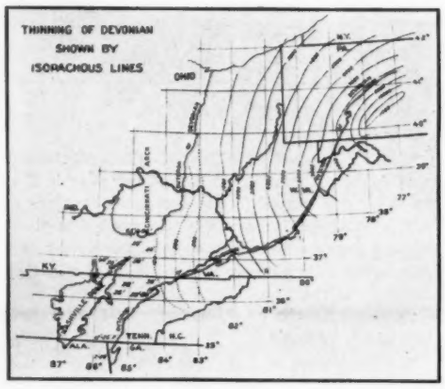

Figure 8

"clear brisk light," and suggested its use in street lamps.

About this time petroleum began to be used for lamps in homes, workshops and factories, having been so used in England since 1760, where it was obtained by distilling coal. In 1846 Abe Gesner in this country patented a process for distilling kerosene from coal, which by 1860 had led to the formation of 55 companies for the distillation of coal oil from cannel coal, the coal oil selling for 60 to 70 cents per gallon.

In the meantime Bosworth, Wells & Co. of Marietta, Ohio, had developed quite a business in buying and selling oil obtained from salt wells of West Virginia and Ohio. At one time they shipped hundreds of barrels to the people in Pittsburgh, Peoria, St. Louis, Chicago, Cincinnati, Baltimore, Philadelphia and New York. The oil brought 33 cents per gallon and later 40 cents. By 1854 oil was in common use and in that year the first deed conveying oil rights in Pennsylvania was signed. By that time the presence of oil was known in many places throughout the Appalachian oil and gas region.

As a result of successful drilling for oil by Drake at Titusville in 1859, drilling spread rapidly in those areas where the presence of oil and gas was already known. Thus the Rathbone Brothers, who in 1842 has purchased 1,000 acres in the Little Kanawha and Burning Spring Run region, and drilled for salt, struck so much oil that they abandoned a well drilled for salt and skimmed and sold the oil; in 1859 installed a pump in the well and began pumping oil and the well produced several barrels a day. This was possibly the first well to be pumped. Probably the first well to be drilled for oil in West Virginia was drilled on the Rathbone place in 1859, completed in May, 1860, to a depth of 303 feet and produced 100 bbls. a day.

Naturally the finding of oil on Oil Creek led to a rapid development in Pennsylvania. Flowing wells appeared on Oil Creek in 1861 and soon many gushers flowed 3,000 to 4,000 bbls. a day. By 1865 development here and there had extended as far south as the southwest corner of the state, with drilling in the intermediate territory and the Bradford field beginning in the later 1860's. Natural gas was piped to Titusville in 1872 and two years later was used in iron making. In 1875 the Bradford field opened up, reached its maximum in 1881, and in 1883 gas began to be piped to Pittsburgh. In 1884 a well on Thorn Creek flowed 12,000 bbls. a day. In 1891 the McDonald field opened up and one well flowed 730 bbls. per hour.

Subsequent development has to do mainly with the extending of the fields and deeper drilling for gas, both in Pennsylvania and West Virginia. For many years the deepest wells in the world were in those states. Finally in the early years of the present century repressuring of oil wells in the Bradford and other fields was started.

Though drilling began in all of the Appalachian states, including New York, immediately after the drilling of the Drake well, the bulk of the production continued to come from Pennsylvania for the first 10 or 15 years. New York became a large producer with the opening up of the Bradford field, and in 1882 produced 6,000,000 bbls. In 1884 Ohio and West Virginia had a combined production of

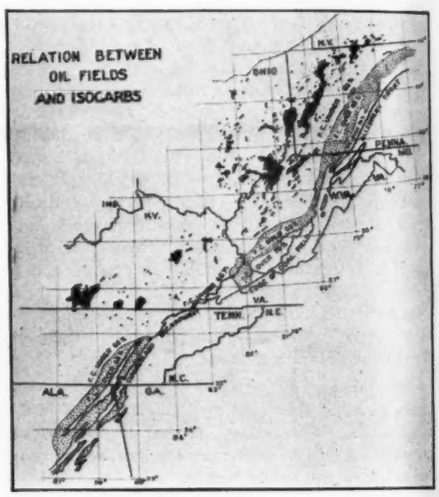

Figure 9

only 180,000 bbls. as against 20,541,000 bbls. in Pennsylvania and 2,231,000 bbls. in New York. Kentucky and Tennessee the same year had a combined production of only 4,000 bbls. In 1933 Pennsylvania had produced all told 898,360,000 bbls. and New York 85,454,000 bbls. Pennsylvania reached the high of 31,424,000 bbls. in 1891, then declined to 7,418,000 in 1921, since when repressuring has raised the production to about 18,000,000 bbls.

Production in West Virginia reached the high of 16,168,000 bbls. in 1900 and had declined by 1933 to 3,815,000 bbls. Ohio reached a maximum for the whole state of 23,941,000 bbls. in 1896 and has since declined to 4,235,000 bbls. in 1933, of which 3,203,000 bbls. were from eastern and central Ohio and 1,032,000 bbls. from northwestern Ohio.

Kentucky and Tennessee remained very small producers until the beginning of the present century when production took a small spurt, rising to 1,217,000 bbls. for the two states. In 1910 production had dropped back to 409,000 bbls. in Kentucky and none in Tennessee. In 1916 production again reached 1,000,000 bbls. in Kentucky with 1,000 bbls. from Tennessee, increasing to 9,278,000 bbls. in Kentucky and 15,000 bbls. in Tennessee in 1919. From that high, Kentucky production had declined to 4,608,000 bbls. in 1933, and production in Tennessee had reached 60,000 bbls. in 1927 and

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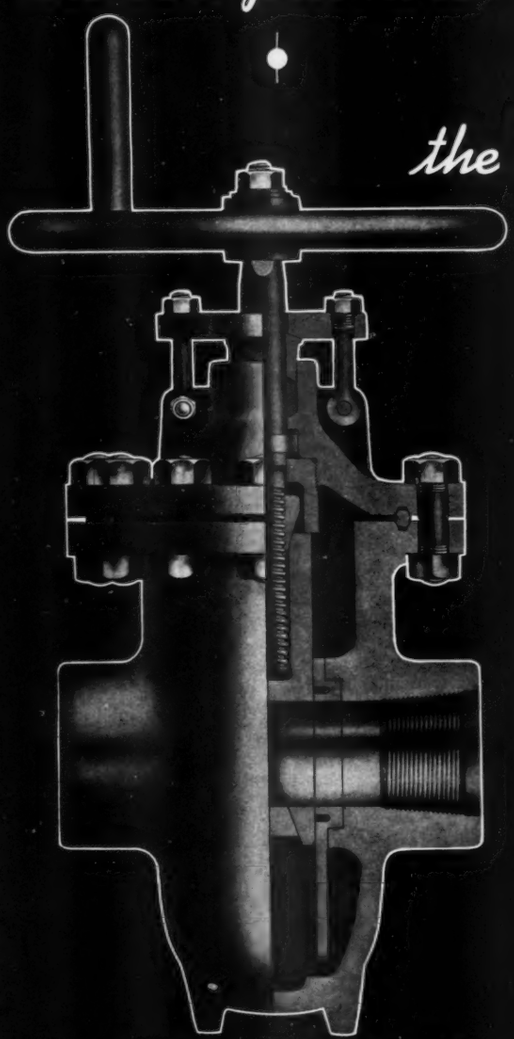

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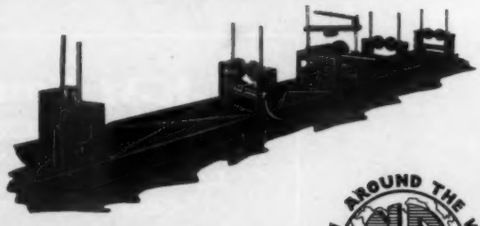

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declined to 5,000 bbls. in 1933. The principal producer in Kentucky had been a thin limestone formerly correlated with the Onondaga or "Cornif-erous limestone," but now thought to be of middle Hamilton age. Smaller production has come from many horizons from the Pennsylvanian to the Ordovician. In Tennessee, as previously pointed out, most of the post-Ordovician strata became thin or played out against the Nashville dome and production has come mainly from the Fort Payne chert of the Lower Mississippian age and from the Chickamauga limestone of Ordovician age.

Alabama has revealed many shows of oil and gas, but only one oil well and one gas pool. Drilling began in 1865 to 1867 near some oil tar springs in Lawrence County. One well struck "some oil" at 1,500 feet in Trenton limestone. From 1902 to 1906 drilling in Fayette County, following the report of a show of oil in a diamond drill hole sunk for coal, got about 6,000,000 feet or less of gas per well at 1,400 feet in the Fayette sandstone in the Coal Measures. By 1929 about 250 wells had been drilled, covering most of the state considered as possible oil or gas territory.

As to the future, estimates made by the state surveys of Pennsylvania, Ohio and West Virginia, in cooperation with the leading oil geologists of the Pennsylvania Grade crude oil territory, indicate possibly 1,500,000,000 bbls. of oil as still in the ground. Whether it can be recovered remains to be seen.

Vegetable Fuel in China

China is experimenting with vegetable oil as fuel for diesel motors in trucks and buses, but it is doubtful the economies claimed in the experimental run from Shanghai to Kunming actually resulted. The diesel engines operating on vegetable oil are said to fall far behind petroleum fuels in speed and power.

At the same time, a charcoal-burning motor was installed in a companion bus with more satisfactory performance. The chief disadvantage in the charcoal-burning motor is the necessity of refilling the fuel compartment at frequent intervals.

A Chinese account of the experiments with the two types of fuel, vegetable oil and charcoal, follows:

"Testifying to its dependability for long trips, the 2½-ton bus of the China Motor Car Manufacture Co. successfully completed its trial run of 4,109 kilometers from Shanghai to Kunming. Using vegetable oil all the way, the China-made bus negotiated the entire distance without a mishap, arriving here together with the Nanking-Yunnan motor caravan.

"It is estimated that the use of vegetable oil is 86 per cent cheaper than gasoline. The highest speed of the bus is 60 kilometers per hour, and the machine can climb mountain slopes with ease. In covering the 4,109-kilometer trip, a total of 410 gallons of vegetable oil were consumed, the average being from 12.5 to 13 kilometers to each gallon.

"Only 2 gallons of lubricating oil were used during the whole trip, or 1 gallon for approximately 2,000 kilometers.

"The charcoal bus, on the other hand, ran smoothly until she reached Panghsien, a mountainous district in Kweichow, when its bearings were damaged on account of the lack of lubricating oil. This bus is claimed to possess a speed of from 50 to 60 kilometers per hour. For one caddy of charcoal it can run about 2 kilometers. The generator is so constructed coal can be used in combination with charcoal.

"Owing to the greater cost of their engines, both the charcoal and vegetable-oil buses are more expensive than gasoline buses. Although a charcoal bus costs $5,600, the cheapness of the fuel used makes it more economical to operate in the long run."

This item is from China Motor & Transport, Vol. 1, No. 4, published by China Associated Enterprises, 620 Szechuen Road, Shanghai.

Properties of Metals for Use in Low-Temperature Processes

By W. L. NELSON

The extremely low temperatures encountered for such services as air transportation, dewaxing of petroleum, refrigeration and the handling of liquefied gases, requires a different type of metal than we have heretofore desired. Most of the common metallic materials such as carbon steel, low percentage alloy steels, etc., become brittle at low temperatures and will not withstand shock or misapplied stresses.

In general, the best types of material for low temperature service are the alloys that are solid solutions, such as monel metal (Cu-Ni) and 18-8 chrome nickel steel. In such materials the two, or more, elements that compose the material are so intimately associated with each other that physical examinations, such as inspecting the alloy by means of a microscope, fail to reveal the two different elements. In other words, such materials are the nearest approach to a perfect mixture, of which we are aware. Carbon, as found in most steels or alloys, does not produce such a fine mixture as those found in solid solution alloys. It appears as the very brittle compound known as cementite or iron carbide—and lends this property of brittleness to the entire alloy. In fact, this ability to harden and strengthen iron, is the very reason that carbon has been the most useful element for the production of iron alloys, namely, the steels. However, the hardness caused by carbon is excessive for materials that are to be used at low temperatures and hence carbon is not a desirable constituent for such steels.

The embrittling effect of carbon is indicated in Figure 2, which shows the Charpy impact numbers of several materials. The carbon steels containing 0.15, 0.22 and 0.48 per cent carbon indicate the deleterious effect of too much carbon. The same is true of the nickel steels numbered S.A.E. 2110, 2320, 2330 and 2175 which contain more and more carbon in the order given—the amounts being 0.1 per cent, 0.2 per cent, 0.3 per cent and 0.75 per cent, respectively. In Figure 2, the Charpy impact numbers are in exactly the same order, the lowest carbon steel (2110) being the least brittle and the high carbon steel (2175) has little shock resistance. Steel 2110 contains so little carbon that the carbon has little effect and such a steel is little affected by temperature whereas the other steels all lose shock resistance as the temperature is decreased. Note the extremely high shock resistance of monel metal which is a solid solution alloy.

As a further indication of the embrittling effect of carbon, Table 1 shows the Charpy impact number of two nickel steels but heat treated in several ways. The usual method of accentuating the properties of carbon steels is to quench and temper them. The quenching operation tends to keep the iron carbide particles in a finely divided condition but in so doing the steel becomes extremely hard and brittle. The tempering or drawing operation which follows quenching is for the purpose of modifying this hardness and brittleness, and making a softer, more shock resistant material but the carbon particles are still finely divided after tempering. The higher the drawing or tempering temperature the more the softening and hence the steels in Table 1 that were drawn at a high temperature exhibit the greatest shock resistance. Thus, by quenching and tempering a S.A.E. 2110 steel at 410° F., the impact strength is low (23) whereas by tempering to 1,150° F., the strength is over 70 foot-pounds. The same is true of other steels such as S.A.E. 2330 shown in Table 1, but in this case, the higher nickel content of the S.A.E. 2330 steel has aided in keeping the carbon finely dispersed so that the relatively effect of the different drawing temperatures is not as pronounced. The condition and microstructure of the normalized materials shown in the table is most nearly like the sorbitic material produced by a high tem-

TABLE 1—EFFECT OF QUENCHING AND TEMPERING ON THE IMPACT RESISTANCE OF NICKEL STEELS*

Steel—	Heat treatment	Charpy impact test in foot-pounds/specimen— 70° F.	0° F.	—20° F.	—35° F.
(0.17% C-1.5% Ni):					
S.A.E. 2110-Martensitic	Quenched and drawn at 440° F.	22 8	20 9	20 7	24 3
S.A.E. 2110-Troostitic	Quenched and drawn at 810° F.	38 7	38 1	38 0	37 5
S.A.E. 2110-Sorbitic	Quenched and drawn at 1,150° F.	67 7	70 0	79 5	74 5
S.A.E. 2110	Normalized	68 7	70 0	72 5	64 2
(0.3% C-3.5% Ni.):					
S.A.E. 2330-Martensitic	Quenched and drawn at 440° F.	18 0	17 7	20 7	14 7
S.A.E. 2330-Troostitic	Quenched and drawn at 810° F.	29 6	33 8	30 5	29 3
S.A.E. 2330-Sorbitic	Quenched and drawn at 1,150° F.	48 7	52 6	49 5	
S.A.E. 2330	Normalized	24 0	20 2	17 1	15 6

*By D. A. Campbell, University of Alberta, Canada, Trans. of A.S.T.M., September, 1935.

TABLE 2—ANALYSES OF STEELS

Steel and curve No.—	Approx. composition— % C.	% Special	Notes	Reference
1. Basic Bessemer	.04		Nearly pure iron	Rotscher & Fink, Metal Progress, December, 1933
2. Open hearth	.15		Regular carbon steel	Rotscher & Fink, Metal Progress, December, 1933
3. Silicon manganese	.15	.89 Si-1.12 Mn		Rotscher & Fink, Metal Progress, December, 1933
4. Copper-chromium	.15	.85 Cu-.51 Cr		Rotscher & Fink, Metal Progress, December, 1933
5. Copper-manganese	.19	.60 Cu-1.09 Mn		Rotscher & Fink, Metal Progress, December, 1933
6. Zirconium	.16	.66 Zr		Thum, Metal Progress, August, 1937
7. Vanadium	.15	.46 Va		Thum, Metal Progress, August, 1937
8. 5 Chrome	.17	5.0 Cr	After high temperature service	Thum, Metal Progress, August, 1937
9. 18-8 Chrome nickel and monel metal	low	18 Cr-8 Ni 67 Ni-31 Cu	Solid solution steel Solid solution alloy	Ackerman-Inco, Vol. XV, No. 1

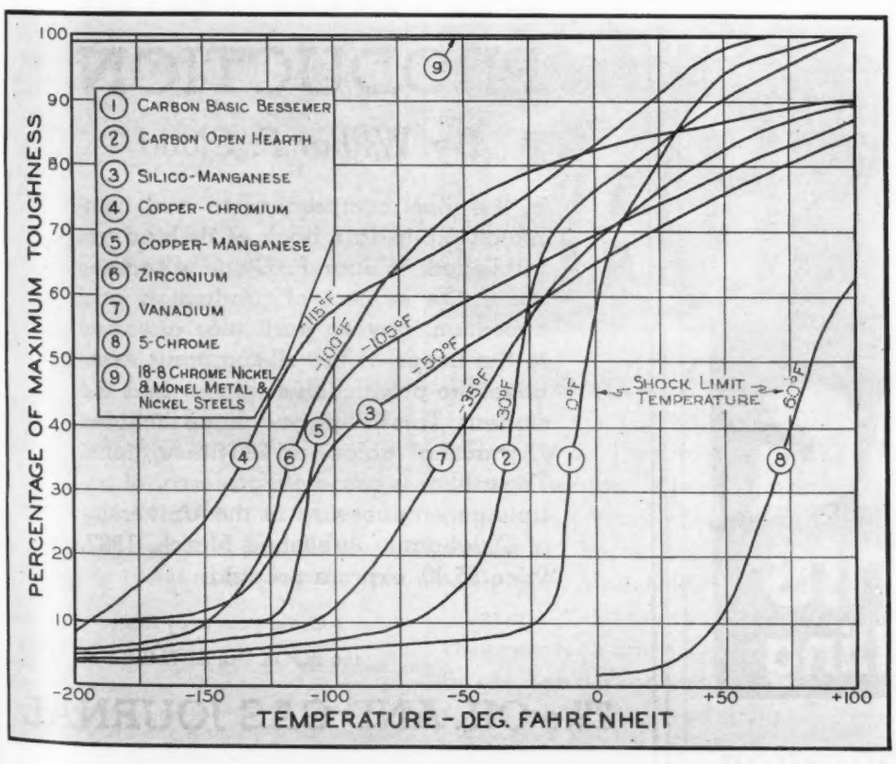

Fig. 1—Temperature at which some alloys lose their resistance to shock

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The OIL AND GAS JOURNAL

pering temperature but since normalizing is nearly an air-cooling operation, the carbon is not as evenly dispersed as in the quenched and tempered specimens.

Of the alloy elements that have been found most useful in improving the properties of carbon steel, the three soluble elements, nickel, silicon and copper, tend to dissolve in the iron and to produce materials that are similar to solid solution alloys. In as much as the solid solution alloys are the best materials for low temperature shock resistance, it is not surprising that the nickel, silicon and copper steels also exhibit superior shock resistance. The nickel steels have proven to be eminently successful for this purpose but as yet the other two alloy steels have shown only a slightly better shock resistance than other steels.

The other common alloy elements such as chromium, tungsten, molybdenum, vanadium, etc., tend to cause precipitation of brittle carbide particles unless extremely large percentages of the alloy elements are used or the percentage of carbon is very small. Thus, few carbide producing types of alloy steels are shown in Figure 1 and the poorest steel of all is the 4-6 per cent chromium steel which had been used in pipe still service. The heating of this steel for many days at an elevated temperature has resulted in separation of the carbide particles and excessive cold-brittleness. The relative positions of the curves shown in Figure 1 should not be credited with too much significance. This figure shows only the percentage of maximum toughness or shock resistance of the materials with respect to the maximum toughness exhibited by each of the materials. Thus the toughness of the zirconium steel shown as Curve 6 may not be particularly great at any temperature and hence the fact that its toughness is retained to minus 100° F. may not be of particular significance. The real usefulness of Figure 1 is as a guide in determining the temperature at which the toughness of the material decreases so that it rapidly loses its normal properties. Thus, although carbon steel may have satisfactory shock resistance at room temperature, its shock resistance drops to very low values if the temperature is reduced to minus 50° F., and the material is no longer dependable. This temperature is referred to in Figure 2 as the shock-limit temperature. The compositions of the steels shown in Figure 1 are tabulated in Table 2.

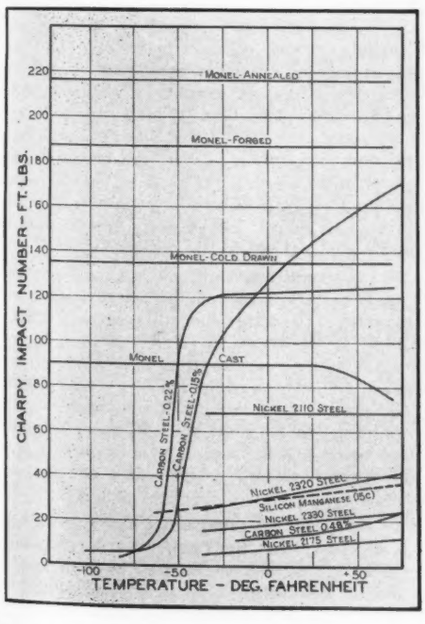


Fig. 2—Charpy impact of some common alloys versus temperature

Summary

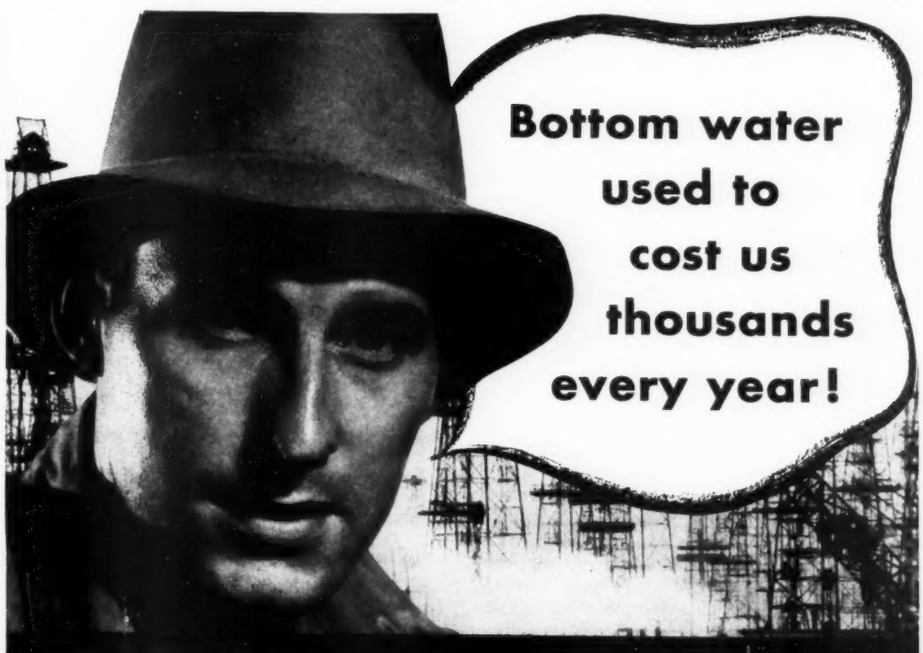
1. Solid solution alloys such as monel metal and the austenitic steels such as the 18-8 chrome nickel stainless steel retain their shock resistance or impact numbers to extremely low temperatures.

2. Alloy steels which contain an element that is soluble in iron are also superior in shock resistance at low temperatures. The nickel steels have been studied completely and are probably the best cheap materials that are now available for low temperature service. However, the other soluble element alloy steels such as the copper, copper-chromium and manganese silicon steels should also have superior toughness properties at low temperatures.

3. Carbon and the carbide producing elements such as chromium, vanadium, molybdenum, etc., are generally unsatisfactory as alloying elements in low temperature steels unless they are used in extremely small quantities.

4. The heat treatment that a steel undergoes is of primary importance but is a factor that should be referred to steel manufacturers by refinery metallurgists.

5. All alloys or alloy steels lose their toughness rapidly at some low temperature which is called the shock-limit temperature except the solid solution alloys or steels which fail to lose toughness (Figure 2).



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Commercial Processes Used in Reducing Salt Content of Crude Oils

By Gustav Egloff, E. F. Nelson, C. D. Maxutov and Charles Wirth, III
Universal Oil Products Co.*

One of the most widely used processes to desalt crude oils is that of heat and pressure. The crude oil which may have the salt dispersed through the oil in crystal or colloid form is treated with water to dissolve the salt and produce a synthetic emulsified crude oil which is then subjected to heat and pressure. The percentage of water added and the temperature, pressure, and time of settling vary quite widely as a function of the properties of the crude oil.

A heat and pressure desalting unit[2] operating on Michigan crude containing 220 pounds of salt was reduced to 8 pounds per 1,000 bbls. The crude oil is thoroughly mixed with from 10 to 12 per cent of water which dissolves the salt forming an emulsion. The synthetic emulsified crude is raised to a temperature of 250° F. under about 60 pounds pressure as it flows through a heat exchanger and a heating coil to a settling tank where the water is drawn off and the crude then fractionated to commercial products. This operation eliminated corrosion particularly of the condensing equipment on the various side streams from the bubble tower.

Desalting East Texas Crudes

A recent article[3] summarized the methods of salt removal from crude oil in East Texas. Salt is appearing most on the northern, western, and southern portions of the East Texas field but is also fairly general throughout the field. If from 3 to 5 per cent of water is added to the petroleum to dissolve the salt, the brine settles out best at 220 to 240° F. with a pressure of at least 110 pounds on the settling drum; and the settling drum must be of such capacity as to allow 50 minutes for the settling process in continuous operation. Loss of light fractions can be prevented either by pressure on the drum or by equipping it with a vaporizing dome connecting with a vapor line or fractionating tower. The charge pump serves to mix the water with the oil and the mixture is discharged through heat exchanger or small auxiliary heating tubes into a diffuser pipe that enters the salt drum horizontally near the bottom. The pipe has enough one-fourth inch holes bored in the underside to exceed in cross section the cross section of the pipe by 10 per cent. The end of the pipe is capped. The settling drum is well insulated to prevent heat loss. Satisfactory conditions of temperature and pressure vary with the particular crude oil and other factors. Following are some of the conditions that have been reported as successful: 150° F. and 80-90 minutes' settling time; 130° F., atmospheric pressure, and 16 hours; 250° F., 185 pounds pressure, and 60-90 minutes. If the oil contains more than 150 pounds of salt per 1,000 bbls., the temperature and pressure applied must be higher. One refiner flashes off 75 per cent of the gasoline fraction from the watered charge at 186° F. into a 3 by 16-foot tower with a few bubble trays before the charge goes to the settling drum. This is after introducing hot water into the charge just after it leaves the discharge point. The salt content must be reduced below 5 pounds per 100 bbls. of oil.

Deposition of salt in tubes and corrosion by hydrochloric acid from the hydrolyzed magnesium chloride are the consequences of too much salt in the oil. Steam will sometimes clear the tubes clogged with salt, in other conditions it is not entirely effectual. Deposition is not serious where the heat is "soft," that is, from heat exchangers and convection tubes. High rate of input of radiant heat necessitates better reduction of the salt content.

By mixing fresh water with the pressure still charging stock under very definite conditions, the Naph-Sol Refining Co.[4] has been able to reduce the salt content of the charge from 150 pounds per 1,000 bbls. to 20 pounds and the number of days the cracking unit is on stream has been doubled. In a general way, this outlines the results obtained by the company since installing a desalting unit on its 1,500-bbl. Dubbs cracking plant in its Muskegon, Mich., refinery.

The presence of salts in a crude oil almost invariably means that the oil contains emulsified brine or "B.S." However, even in crudes which show a "B.S." content well below pipe line limits, the amount of salt carried in solution in the emulsified brine may be surprisingly high.[5] For example, the brine accompanying some Michigan crudes has a specific gravity of 1.21 and a chloride content, calculated as sodium chloride, about 1,200 grams per gallon. An oil containing only 0.5 per cent of this brine would have a chloride content (as NaCl) of 550 pounds per 1,000 bbls.

A.I.M.E. — Second half of a paper presented before the American Institute of Mining and Metallurgical Engineers, October 8, 1937, Oklahoma City

Desalting Pipe Line Oil

The desalting of pipe line oil, then, actually depends upon the removal of the last few tenths of a per cent of emulsified brine. In general, this may be done in one of two ways, namely, either by treatment of the crude to reduce the emulsion content to nearly zero, or by dispersing fresh water in the oil to coalesce with and drag out the brine particles. The first or "superdehydration" method is difficult to apply in practice. With any process of demulsification the rate of separation of the dispersed phase must depend upon the rate of collision of the dispersed particles and upon the rate of settling of these particles in the oil. The 1 per cent or less of emulsion contained in refinery stocks almost always consists of extremely fine droplets (often less than 10^{-4} cm. in diameter) which settle very slowly, and since the total concentration of particles is low, the probability of collision and coalescence of particles to form larger droplets which will settle out is also very small. The amount of salt removed by this method is directly proportional to the decrease in "cut."

In the second process, involving the dispersion of fresh water in the oil, the treated oil, after separation of the dispersion, still may have a "cut" as high as the untreated crude, or even higher for that matter, but in this case much of the residual emulsion is composed of the added fresh water and the lowering of salt content is roughly proportional to the ratio of fresh water added to initial "cut." It is the second process which is generally used in desalting and which will now be discussed.

To get good desalting results with this method it is necessary that the fresh water be dispersed in the oil in fine particles so that they will remain in the oil sufficiently long to coalesce with the droplets of emulsified brine. If a coarse dispersion is formed, greatly increased amounts of fresh water must be used to give efficient results and this requires a large settling space. However, with a fine dispersion, the rate of settling is very slow, and this also demands large settling space. Furthermore, when the added fresh water is dispersed in small particles, they become, with most oils, more or less permanently emulsified due to the adsorption at their surfaces of the emulsifying agents commonly occurring in the oil. In order to

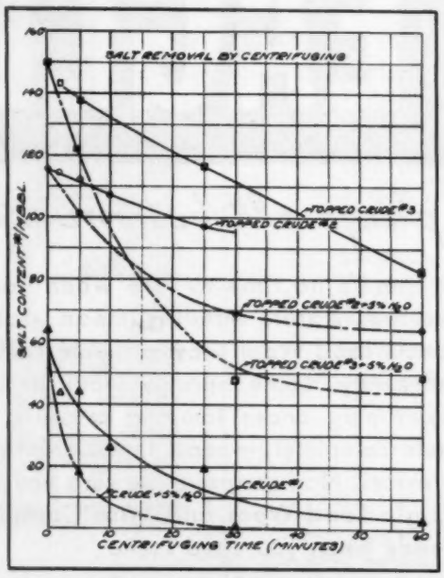


Fig. 4—Results of removing salt by centrifugal methods

[2]Nat. Pet. News, 29, No. 8, 96-7 (1937), Feb. 24.
[3]Nat. Pet. News, 29, No. 8, 96-7 (1937), Feb. 24.
*Paper presented under authors' title: "Crude Oil Desalting."
[4]The Oil and Gas Journal, 35, No. 15, p. 46 (1936).
[5]From Dr. Charles M. Blair, Jr., the Tretolite Co.

obtain a rapid and efficient desalting operation with a minimum amount of fresh water it is necessary to break the emulsion so formed or to prevent its formation. The use of demulsifying chemicals added either to the fresh water before dispersion or to the oil, or possibly to both the oil and the water in some cases, has proved to be an effective way of meeting this problem.

On first sight, it may appear that the proper demulsifying agent to be used in a desalting plant is the demulsifier which was used in the field to treat the crude to be desalted down to pipe line requirements. However, such does not appear to be the case. The choice of a proper chemical compound for demulsification depends upon the type of oil, the amount and composition of the water phase, the agitation obtainable after addition of the chemical reagent, the settling temperature, the settling space, etc. All of these factors are generally different in the refinery as compared with oil field practice. Furthermore, refinery crude stocks often are composite samples from a number of fields and one chemical demulsifying agent must be found which works well on this composite material. As the demand for demulsifying chemicals for desalting processes increases, new compounds presumably will become available which will be designed to be especially effective for use in connection with these refinery emulsions containing a major proportion of dispersed salt-free water, but which may have little effectiveness on the hard water oil field emulsions as produced.

Adding Chemical Demulsifier

Of the two methods of adding the chemical demulsifier, it has been found by experiments that less chemical usually is required when it is added to the water rather than to the oil. When added in this manner, the chemical is necessarily near to the water-oil interface to which it must eventually be adsorbed to prevent undue stabilization of an emulsion. When added to the oil, considerable time is required for it to diffuse throughout the large volume to the water-oil interface. In some cases, the most effective chemical compound is not dispersible in water and must necessarily be added to the oil. Also, as mentioned above, it may be desirable to add a demulsifier to both the oil and the water in some instances.

In explaining the effectiveness of the chemical method of desalting it does not appear to be necessary to assume that the added fresh water is physically mixed with the salt water originally present, although this may occur to a small extent. It seems likely that some of the chemical demulsifier contained in the added fresh water (or in the oil) diffuses to the drops of emulsified salt water and in some manner counteracts the emulsifying agent there segregated, thus increasing the probability of coalescence of these drops with any other drops with which they may come in contact. Then, too, the added fresh water increases the total concentration of particles and, as a result, greatly enhances the probability of collision of particles. These various factors, working together, result in the coalescence of many of the original salt water droplets with fresh water particles. Naturally, this process is repeated over and over until the droplets become large enough to settle rapidly and the concentration of dispersed phase falls back to low value. Optimum conditions for desalting would obtain if, in the dispersion formed, the particles of salt water originally present and the particles of added fresh water all happened to have the same size and the same probability of coalescence on contact with surrounding particles. Under such conditions, with a given initial and final "cut," the amount of salt removed would be directly proportional to the ratio of volume concentration of added fresh water to volume concentration of brine originally present. This ideal condition cannot be reached in practice because of the impossibility of obtaining absolutely homogeneous dispersions and because the droplets of the dispersed brine may be coated with a stable, aged emulsifying layer which prevents as complete destabilization of these droplets by the added chemical compound as is obtainable with the fresh water droplets. These latter droplets, from the moment of their dispersion in the oil, are prevented by the chemical reagent from forming a completely coherent emulsifying layer on their surfaces, and as a consequence, the tendency for fresh water particles to coalesce with other fresh water particles is somewhat greater than the tendency for fresh water particles to coalesce with brine droplets. Although the conditions for optimum desalting cannot be completely reached, they may be approached very closely by proper adjustment of plant variables and correct choice of chemical demulsifier.

Assuming that optimum desalting conditions prevail and knowing the initial salt content of a pipe line oil and the initial and final cuts, it is a simple matter to calculate the "theoretical" amount of salt left in the oil when a given amount of fresh water is used. Final salt content in grams per barrel is given by

$$R = \frac{Sf}{V + i} \qquad (1)$$

where S is the initial salt content in grams per barrel (42 gallons), f is the final cut, i is the initial cut, and V is the percentage of fresh water (based on the volume of the crude) which is dispersed in the oil.

This equation permits one to estimate approximately the amount of fresh water required to desalt a crude down to any desired final salt content. In actual plant practice, salt removal efficiencies of 75 per cent or more of the theoretical value are not uncommon.

It is obvious, of course, that equation (1) will not give the theoretical amount of salt left in the oil if the water used in the plant is not salt-free. In this case, the theoretical amount of salt left in the oil, assuming removal of salt water and "fresh" water droplets in proportion to their volume concentration, as was done above, is given by

$$R = \left(S + \frac{GV}{100}\right) \frac{f}{V + i} \qquad (2)$$

where G is the salt content of the added "fresh" water in grams per barrel (42 gallons).

However, if the salt content of the "fresh" water is not over about 200 grams per barrel, equation (1) still gives a value for the residual salt content of the crude which is within a few per cent of the value calculated from equation (2).

In localities where the amount of available fresh water is limited, it may be desirable to recycle the water effluent from the settling tank, using it a second time for dispersion in the untreated pipe line oil. When this is done, the amount of residual salt in the oil desalted with this water becomes approximately double that left in the oil treated with the original fresh water. If extremely good results are obtained with the fresh water the higher salt content obtained by recycling the water may still be within the limit desired. By using such a recycling process, larger volumes of water may be used in each extraction, thus giving better separation of phases, without increasing the total amount of fresh water required.

General Condition

From what has been said, it is evident that no one set of conditions can be prescribed which will fit all chemical desalting plants. The variables to be fixed depend greatly on the type of oil, the salt content, the availability of fresh water, the ease of disposal of salt water, the degree of salt removal desired, the temperatures available, etc. However, there are a few conditions which seem to be uniformly necessary for obtaining good results. They are: (1) As fine and uniform a dispersion of the added water in the oil as is still compatible with the requirement of moderately rapid and complete settling out of the water; (2) high settling tank temperature; and (3) careful selection of the demulsifying chemical.

For obtaining fine and uniform dispersion of added water, the Globe valve has proved very satisfactory. This type of valve gives a pressure drop almost independent of the rate of flow of the fluid and may easily be adjusted to give any desired degree of dispersion. The importance of settling at high temperatures cannot be overemphasized. Increasing the temperature of the oil greatly decreases its viscosity and correspondingly decreases separation time since the rate of settling of the water particles is inversely proportional to the viscosity of the oil. With heavy crudes, in particular increasing settling temperatures will permit much greater throughput. In any plant, the throughput obviously is limited only by the time required for the dispersion to separate. Use of the proper de-

TABLE 4—DATA ON ELECTRICAL DESALTING

Plant	Number of desalting units	Daily throughput (bbls.)	Oil gravity A.P.I.°	Salt content gms./bbl. In	Salt content gms./bbl. Out	Per cent water used	Operating temp. °F.	On-stream time. Days increased From	On-stream time. Days increased To
A	3	4,500	36	168	10	20	180	8	30
B	2	2,200	18	160	4	15	170	5	60
C	4	6,000	28	60	5	15	170	...	...
D	2	2,500	40	150	5	20	190	12	48
E	4	6,000	39	25	3	20	190	7	24
F	2	2,500	26	137	6	8	140	...	...

TABLE 5—CENTRIFUGING WITH 5 PER CENT WATER BY VOLUME

Sample—	Sample number	Centrifuging time: 5 min. Salt lbs. per 1,000 bbls.	5 min. A.S.T.M. water decanted oil	30 min. Salt lbs. per 1,000 bbls.	30 min. A.S.T.M. water decanted oil	60 min. Salt lbs. per 1,000 bbls.	60 min. A.S.T.M. H_2O on decanted oil
Mid-Continent topped crude	1	102 5	0 3	69 3	0 3	64 4	0 3
Mid-Continent topped crude	2	122 0	0 5	47 8	0 0	48 8	0 0
Mid-Continent crude	3	18 6	trace	1 0	0 0	trace	0 0

TABLE 6—CENTRIFUGING WITHOUT ADDITION OF WATER

Sample:		Sample number	Original b.s.&w. in oil	A.P.I. gravity	Number centrifuging	Salt content (lbs. per 1,000 bbls.) on centrifuging: 2 min.	5 min.	10 min.	25 min.	60 min.	A.S.T.M. water in decanted oil after 60 min. centrifuging
Mid-Continent topped crude	Per cent reduction in salt content	1	0 3 0 0	25 7	116 0 0 0	114 2 1 5	112 3 3 2	107 8 7 1	97 8 15 7	....	0 1 ...
Mid-Continent topped crude	Per cent reduction in salt content	2	1 0 0 0	24 3 5 2	150 3 0 02	142 6 5 2	132 0 12 2	138 0 8 5	116 3 22 8	82 3 45 3	trace
Mid-Continent crude	Per cent reduction in salt content	3	0 4 ..	39 9	63 5 0 0	43 9 30 8	43 9 30 8	26 4 58 4	19 5 69 3	2 5 96 0	trace

mulsifying chemical and a high settling temperature are the two chief requirements for shortening this time.

Electrical Methods

The electrical process for desalting and dehydrating crudes is in wide commercial use. In this method water is added in quantities adjusted to the requirements of the crude oil and thoroughly mixed to dissolve the salt, forming an emulsion, which is then subjected to an alternating current of high potential, about 16,000 to 33,000 volts.

The Lion Oil Refining Co. is desalting a particularly corrosive crude from the Urbana, Ark., field. It is stated by a recent publication[6] that electrical desalting is accomplished in two steps. An emulsion is made of the salt-bearing crude and fresh water; then the mixture is electrically demulsified and separated. About 90 per cent of the salt is transferred from the crude oil to the water wash. Efficiency of salt removal depends upon the nature of the crude, degree of emulsification, and effectiveness of separation of oil and wash water. Emulsification is accomplished by one or more of the following methods: Turbulent flow of oil and water; orifice-plate mixtures; centrifugal pumps and back-pressure valves. The oil and water are separated by electrical dehydrators, such as are used for natural crude-oil emulsions.

The dehydrator consists of a 180-barrel, 25-pound working pressure, 10 by 12-foot tank; 220-volt control equipment; 220 to 16, 500-volt transformers mounted on top of the tank, and electrodes within the tank. Average throughput per day per unit is 1,500 bbls.; operating temperatures, 130 to 200° F.; electric power load, 2 kw.; amount of wash water, 5 to 20 per cent of the oil. The salt content is being reduced from approximately 200 pounds per 1,000 bbls. to about 8 pounds per 1,000 bbls. and dehydration occurs down to 0.7 per cent or less. Before desalting, the average length of a run on the crude unit was from three to six days until a shutdown resulted from plugging of furnace tubes, exchangers, and towers with solid salt. Corrosion of condenser and run-down equipment was severe. By using wash tanks, hot settling drums, and other schemes for reducing the salt content, runs were lengthened to 10 or 12 days. Since installing the electric desalters, 60 and 70-day runs are normal. During a typical operation, when the salt content of the crude was being reduced from 214 to 11.2 pounds per 1,000 bbls., laboratory distillation showed that the release of hydrochloric acid at 650° F. was reduced from 63.85 pounds to 0.54 pound per 1,000 bbls. of crude. The result is decreased corrosion of the equipment.

The desalting process is operated in connection therewith, and involves the injection of hot fresh water into the crude, proper emulsification, then dehydrating by the electrical process and drawing off the salt water. At our plant[7] we operate the equipment as follows: Cold crude is charged through a heat exchanger and the temperature raised to about 120° F., then 20 per cent of fresh water at 160° F. is mixed with the crude oil through an orifice mixer and discharged into a centrifugal pump which further emulsifies the crude and passes it through steam exchangers where the temperature is raised to 190° F., through a mixing valve and thence to the electric dehydrators. The dehydrators operate in parallel and have a capacity of about 1,500 bbls. of oil per day per unit.

Desalting Michigan Crudes

In another refinery, the electrical desalting process operating on Kentucky crude contains from 0.5 to 1.0 per cent b.s. or from 200 to 600 pounds of sodium, magnesium and calcium chloride which was reduced to about 20 pounds per 1,000 bbls. of charge. The length of cracking unit time on stream was thereby increased 300 per cent. The desalting operation improved the quality of asphalt particularly as to solubility in carbon tetrachloride from 99.5 to 99.95 per cent.

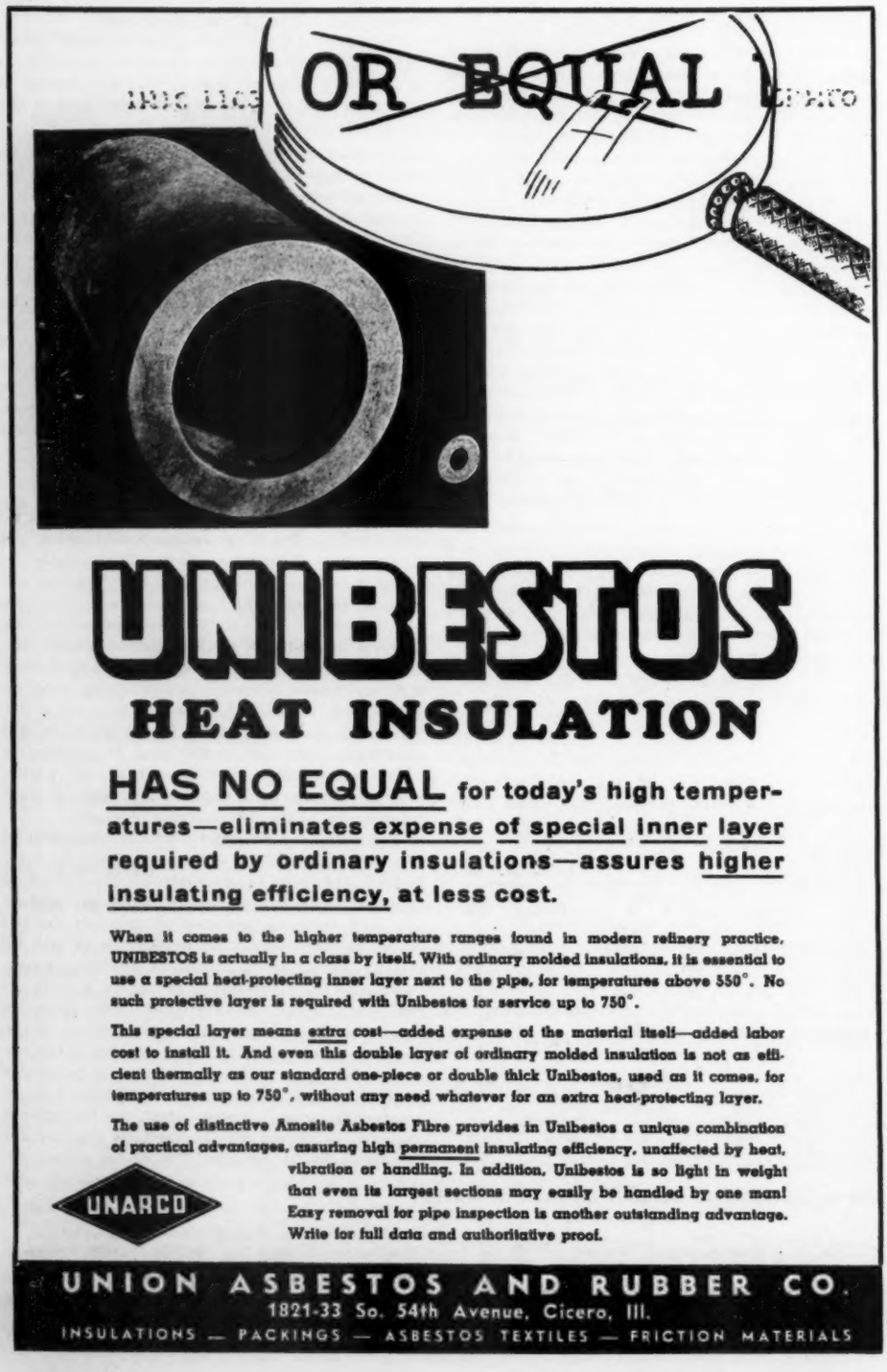
Similarly when operating on a 40-gravity Michigan crude oil which contained 120 grams of salt per barrel which is made up largely of magnesium chloride, the corrosive effect on the unit was quite marked not alone upon the distillation unit but also the cracking unit. When the crude oil was desalted electrically to about 2 grams per barrel, corrosion was reduced enormously and the cracking unit increased its on-stream time from 12 days to over 100 days.

The Pure Oil Co.[8] at Midland, Mich., refinery had difficulty when running Michigan crude due to severe corrosion and salt deposition in heat exchangers and fractionating tower. With a Michigan crude which carried 330 to 350 pounds of finely dispersed salt per 1,000 bbls., K. B. May, the superintendent, found that older chemical and mechanical methods were not satisfactory in removing the salt, or reducing it to a value low enough to permit suitable operation of the plant. The b.s.&w. of the crude runs only 0.5 per cent or less, and the salt was tightly held in the crude. So heavy was the deposition of the salt, especially in the tower, that at intervals of about 10 days all streams from the tower were stopped for an hour or more, and water was pumped into the top of the tower to wash out the salt deposit in rundowns and on trays, to bring the tower efficiency back to normal. This, of course, resulted in loss of time and production. Corrosion was also a problem, necessitating the

[6] J. J. Allinson, American Petroleum Institute, June 2, 1937.

[7] Private communication—J. J. Allinson, Lion Oil Refining Co.

[8] Nat. Pet. News, July 28, 1937; pp. R-55.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use of liquid ammonia in large quantities to eliminate or reduce the corrosive action on distillation and heat exchange equipment.

Two Petreco desalting units were installed, each handling 1,500 bbls. of crude per day. With a consumption of current of 7 to 8 amperes at 220 volts each, the salt content is reduced from 330 to 350 pounds per 1,000 bbls. to 20 pounds or less. The amount of ammonia needed to counteract all corrosive action, in so far as it can be eliminated by ammonia, is reduced by about 40 per cent of the amount used before the installation of the desalting unit was made. The units operate at about 15 to 20 pounds pressure in the cylinders, which are about 10 feet by 12 feet in diameter. The electrodes are set at point about one-third the distance from bottom to top of the cylinder, the planes of the steel strip electrodes being about 12 inches apart; this distance can be adjusted to suit the wishes of the operator. Approximately 15 per cent of water by volume is added to the crude, which is heated by exchange with hot oil fractions to 170-190° F., before entering the desalters. This heated crude-water mixture is thoroughly mixed as it passes through the centrifugal feed pump and enters the desalter cylinder directly between the electrodes.

It is reported by St. Hill and Eddy[9] that overall costs of the process have been found to range between .75 cent and 1.1 cents per barrel. These figures include a license fee which varies with the amount of oil treated. A depreciation charge on the electrical desalting equipment is not included, due to the fact that ownership of the units thus far installed had been retained by the licensing company. Plants now operating in United States have demonstrated the applicability of the process in the successful treatment of a wide variety of oils from various Gulf Coast, Mid-Continent, and Michigan fields. The specific gravities of these oils have ranged from 17.8 degrees A.P.I. to as high as 40.0 degrees A.P.I., and the salt contents from about 25 grams per barrel to over 200 grams per barrel. These salt contents are the equivalents of 55 pounds and 440 pounds per 1,000 bbls., respectively.

Table 4 presents data obtained in connection with electrical desalting plants operating in American refineries.

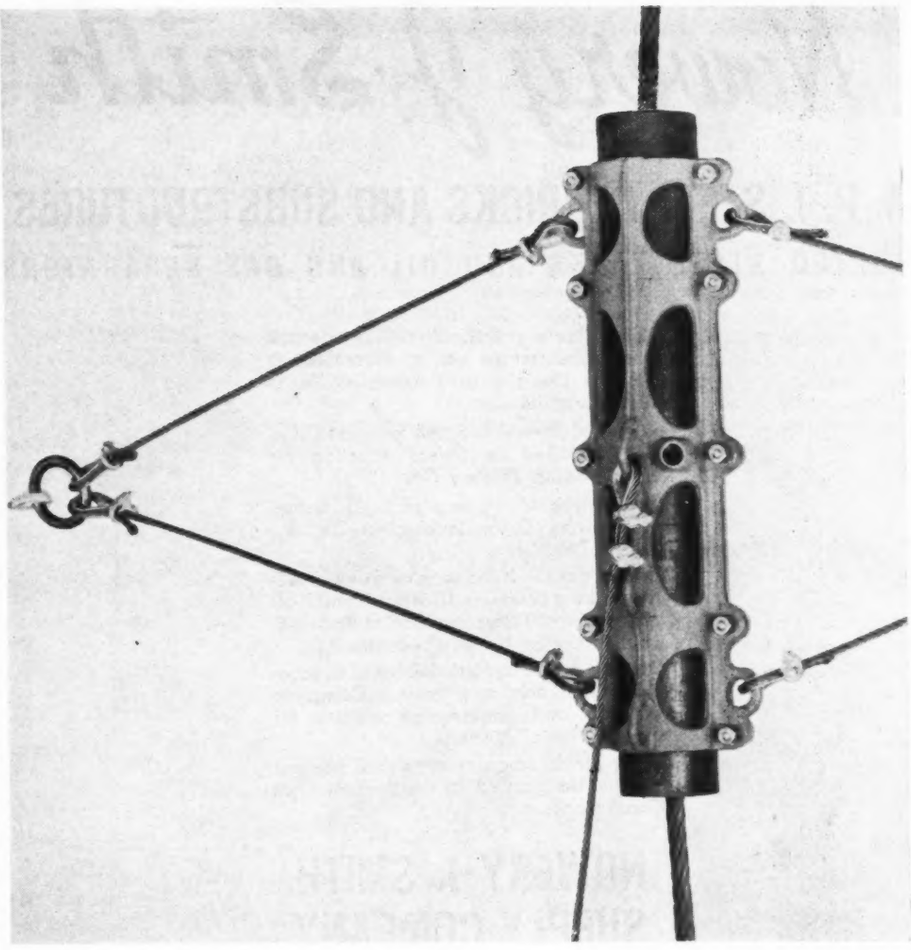
Centrifugal Action

The concentration of salt in Mid-Continent crudes and topped crudes show wide variations. This quantity varies in any given oil from summer to winter since at higher temperatures much better separation of the salt takes place. The water present as an emulsion is quite small and the sediment ranges from 0.2 to 0.3 per cent. The oils in which the salt is dispersed may vary from nearly reduced Mid-Continent crudes of 20 degrees A.P.I. with a viscosity of about 170 seconds, Furol at 122° F. to crude oils of about 40 degrees with a viscosity of approximately 40 seconds, Universal, at 100° F. As a more specific case, we had the problem of reducing the salt content of Mid-Continent topped crude cracking stock of 25 degrees A.P.I. gravity with a viscosity of 22 seconds, Furol, at 122° F. from approximately 230 pounds to less than 30 pounds per 1,000 bbls.

It is known that the salt present in oil may be in an emulsified brine or in crystalline form. Chlorine may be present in some organic chloride. The generalization can hardly be made concerning the amount of each variant present in oil due to the difference in nature and chemical composition of oils. While handling this problem, we were enabled to get a more definite picture concerning the physical states of salt present in the sample of Mid-Continent topped crude and crude oil and also to observe its behavior under varying conditions. The investigations were carried out by the A.S.T.M. centrifuge method.

This method was especially valuable in determining the effectiveness of salt removal by cen-

[9] "The Electrical Process for Extraction of Salts from Refinery Charging Stocks."



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Lower left:—A battery of A.P.I. bolted steel tanks, Union Production Co., Rodessa, Louisiana.

Lower right:—A battery of three, 1000-lb. working pressure, Nowery J. Smith oil and gas separators installed at Rodessa, Louisiana, for Union Production Co.

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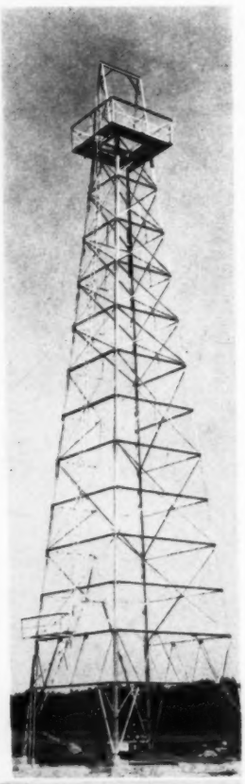

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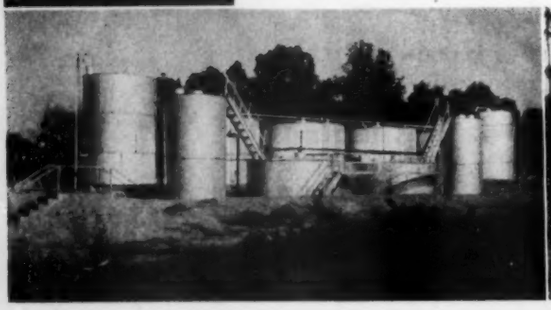

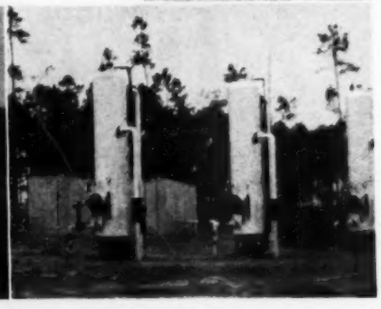

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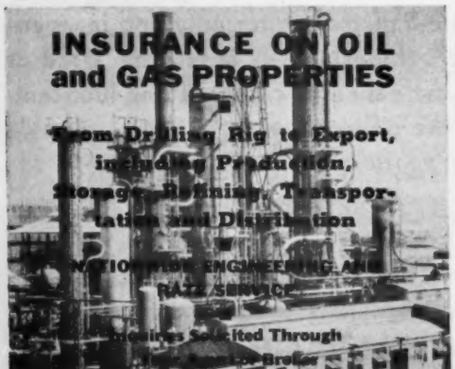

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trifuging, the relative percentages of the crystalline and dissolved salt as emulsified brine in oil, and the advantage in centrifuging the crude oil instead of the topped crude with or without formation of synthetic emulsions prior to centrifuging.

Three samples of oil were used with gravities and salt contents as follows:

Sample—	A.P.I. gravity	Salt (lbs. per 1,000 bbls.)
1. Mid-Continent crude	39 9	63 5
2. Mid-Continent topped crude	25 7	116 0
3. Mid-Continent topped crude	24 3	150 3

All three samples with no water added were subjected to 2, 5, 10, 25 and 60 minutes of centrifuging at room temperature, at constant speed of 1,500 r.p.m. After the centrifuging period the amount of b.s.&w. was determined, oil above the b.s.&w. layer was decanted, and analyzed for salts which were expressed as sodium chloride. Additionally three oils were shaken with 5 per cent of water for 10 minutes to form emulsions and then subjected to centrifuging for 5, 30 and 60 minutes, followed by the determination of b.s.&w. and the salt content in the decanted oil. Figure 4 summarizes the obtained results.

It was noticed that when centrifuging topped crude and crude oil the salt content decreased more rapidly during the first 10 minutes of centrifuging than during the next 50 minutes. The experiments show that such rapid decrease in salt is due to removal of the emulsified brine which separates as a lower layer. This is proved by the fact that there is no further increase of the b.s.&w. layer.

Later, when the water carrying salt is removed, the crystalline salt starts to settle out, reducing the salt content of the oil still further. But the removal of crystalline salt proceeds at a much slower rate due to the salt particles being surrounded by hydrocarbons, whose viscosity offers the resistance to the salt crystals as they settle. Thus in case of the crude oil, whose gravity was 15 degrees A.P.I. higher, the per cent of salt removal was much farther ahead than that of the topped crude which is shown by the slope of the respective curves on Figure 4.

After 30 minutes of centrifuging the salt concentration is still decreasing without the increase in b.s.&w. layer. This indicates that part of the crystalline salt can be removed by centrifuging without being dissolved in water but at much slower rate. The general shape of the curves and the water analyses taken at time intervals suggest the presence of salt in three different forms:

1. Brine, emulsified in oil.
2. Crystalline salt which is affected by centrifuging.
3. Crystalline salt which is but slightly affected by centrifuging.

These forms of crystalline salt probably differ from each other in size of crystals or in colloidal form and in the nature of the hydrocarbon film, surrounding the crystals.

For these reasons it is desirable to have as much of the salt as possible in the form of an emusified brine, which is readily removable by centrifuging, provided the emulsion is not stabilized. Thus when 5 per cent of water was emulsified, it resulted in greater salt reduction for the same centrifuging time than in case of centrifuging the corresponding "dry" samples. However, regardless of how much water was added, or how long the mixture was agitated, the salt content cannot be completely reduced unless the asphaltic or paraffinic film surrounding the salt crystal be removed and the crystal be brought into the intimate contact with water. Otherwise the centrifuging time will be greatly increased with the removal of successively smaller and smaller crystals at sucessively slower and slower rates.

The results of the tests are shown in Tables 5 and 6.

In view of these facts it is self suggestive that the closest contact between water and salt crystals may be obtained by:

1. Proper and sufficient agitation, which should

be determined separately for every individual case.

2. Higher temperatures which will reduce the viscosity of the oil as well as will soften or melt down the film surrounding salt crystals.

As a result of the above considerations and the tests made with the cooperation of the Sharples Specialty Co., it was possible to obtain 99.7 per cent desalting of Mid-Continent topped crude by the centrifuging method.

A special type of a centrifuge, similar to the one used for acid treating, can be employed for desalting crudes or topped crudes. For example, with such a centrifuge, the original salt content of 160 pounds per 1,000 bbls. was reduced to 0.5 pound per 1,000 bbls. The centrifuge is equipped with a 5-horsepower motor, runs at a constant speed of 15,000 r.p.m., and demands 2.3 K.W. Prior to centrifuging, oil is mixed with about 10 per cent water, although the amount of water may be increased if necessary. The oil-water mixture is heated to not higher than 210° F., agitated for a predetermined length of time and charged to the centrifuge.

Thus an almost complete desalting by centrifuging method can be attained. However, such a degree of desalting is not necessary to suit the refining units and it may be economical to sacrifice a certain degree of desalting for greater capacity or fewer centrifuges. On the other hand, it may be feasible to blend completely desalted oil to a desired salt content with salt-containing oil.

Filtration

Although this method of salt removal has not assumed commercial proportions, investigative work in our laboratories has indicated its feasibility. Satisfactory mechanical design of the filter equipment is at present the primary and perhaps only limitation. It is probable that a suitable method will eventually be realized and this procedure will without doubt employ a filter-aid. Without a filter-aid the impurities and salt in the oil will either pass through the filter cloth or completely clog and seal the flow channels. The primary functions of filter-aids, according to Elsenbast and Horine[10] are as follows:

1. The removal of turbidity, suspended salt, wax, small amounts of moisture, etc., by incorporation in a filter-aid cake.

2. The surface tension effect of breaking emulsions by passage through a filter-aid film.

3. Protection of the cotton, wool or metal filter fabric. When petroleum emulsions are filtered through a filter-aid, the emulsion is broken and the separation of oil and water in the filtrate occurs. Crude oils containing salts in either the solid or dissolved phase can be desalted.

Two sets of data were obtained in our laboratories using different laboratory apparatus. In the preliminary work, a hollow disc was used, one face of which was cloth supported on metal screening. An outlet on the other face was attached through a trap to a vacuum line. The filter-aid material was applied to this disc by immersing in naphtha in which the filtering material had been mixed. A cake of one-half to three-quarters inch thickness was thus applied and held in place by the vacuum. The filter was immersed in the oil under test and the oil was sucked through into the trap. After each test a thin layer of the filter-aid was scraped off, exposing a fresh surface. The results of some of the tests are tabulated in Table 7.

The filtration in these tests was effective in reducing the salt content to a satisfactory figure.

In a larger sized experiment with a small vacuum precoat filter, several tests were conducted to determine the salt removal and the filtration rates. A Mid-Continent topped crude oil containing approximately 100 pounds of salt per 1,000 bbls. was used. The oil was maintained at a temperature of 130° to 290° F. in the several test runs. A vacuum of 5 inches of mercury was maintained during most of the tests. The filter-aid precoat was placed on the filter with the aid of a clean gas oil. Under these conditions filter rates as high as 30 gallons per square foot per hour were reached.

The results obtained showed a removal of salt to 14 pounds per 1,000 bbls. Based upon a rate of 24 gallons per square foot per hour a filter of approximately 80 square feet should filter 1,000 bbls. in 24 hours. This size installation is not unreasonable for commercial operation.

[10]The Oil and Gas Journal, 27, No. 34, p. 42.

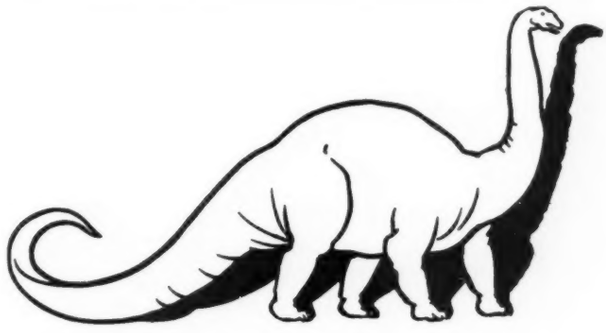
TABLE 7—DATA ON DESALTING BY FILTRATION

Run No.	Type of oil—	Rate cc./min.	Water separated cc.	Salt in oil, lbs. per 1,000 bbls. Before	After
1	Kentucky crude	140	(†)	240	9 2
2	Kentucky crude + 10% emulsified water	77	*40	240	29 2
3	Michigan topped crude at 200° F.	207	15	80	14 8

*87 per cent of water added.
†Not measureable.

East Texas Field Directory

Giles Wimberly, head of the Wimberly Report Service, Kilgore, Tex., announces publication of a revised edition of the East Texas Oil Field Directory, which carries a list of pipe line and producing companies, refineries, casinghead gasoline plants, supply and other companies doing business in the East Texas field. The directory also carries such information on the Sulphur Bluff, Talco, Rodessa and Marion County fields. It also carries considerable information on the fields, including a map of the field and list of personnel of the various state and federal enforcement agencies in the district.



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Crude Oil and Refinery Summary for First Eight Months of 1936-1937

The daily average production of crude petroleum in August, 1937, was 3,712,600 bbls., this being 141,000 bbls. above the average in July, 134,800 bbls. above the previous record of May, 1937, and 645,200 bbls. (21 per cent) higher than the average of August, 1936.

Although crude runs to stills also reached new highs in August, the gain in output was too great to be absorbed and 2,257,000 bbls. of refinable crude was added to storage in contrast to July, when a small withdrawal was made.

The yield of finished gasoline from crude in August was 43.2 per cent, the same as in July, but 1.4 per cent below the yield of August, 1936.

The domestic demand for motor fuel did not come up to expectations as it was only 8 per cent higher than August, 1936; furthermore, it was considerably below the demand in July.

United States Supply and Demand—Crude Oil (Bbls.)

Eight months—	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Indicated domestic demand‡	Exports	Stocks refinable crude August 31
1937	863,858,000	841,120,000	*22,739,000	*2 7	845,977,000	17,881,000	798,889,000	42,231,000	310,923,000
Daily average	3,555,000	3,461,000	93,576	....	3,481,000	73,584	3,287,650	1,729,345	.....
1936	744,237,000	757,335,000	13,098,000	1 7	723,079,000	21,158,000	724,695,000	32,640,000	301,757,000
Daily average	3,062,704	3,116,605	53,901	....	2,963,000	87,070	2,982,284	1,343,210	.....
Increase, 1937	119,621,000	83,785,000	.....	....	122,898,000	†3,277,000	74,194,000	9,591,000	9,166,000
	16 1%	11 1%	.....	....	17 0%	†15 5%	10 2%	29 4%	3 1%

Supply and Demand—Refinery Products—Motor Fuels (Bbls.)

Eight months—	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Domestic demand	Exports	Stocks August 31§
1937	374,148,000	368,013,000	*6,135,000	*1 7	374,148,000	.....	344,031,000	23,982,000	73,797,000
Daily average	1,539,704	1,514,457	.....	....	1,539,704	.....	1,415,765	98,691	.....
1936	336,186,000	331,838,000	*4,348,000	*1 3	336,186,000	.....	313,680,000	18,158,000	65,149,000
Daily average	1,383,481	1,365,588	.....	....	1,383,481	.....	1,290,864	74,724	.....
Increase, 1937	37,962,000	36,175,000	.....	....	37,962,000	.....	30,351,000	5,824,000	8,648,000
	11 3%	10 9%	.....	....	11 3%	.....	9 7%	32 1%	13 3%
Eight months— Kerosene									
1937	42,521,000	39,517,000	*3,004,000	*7 6	42,521,000	.....	33,444,000	6,073,000	8,637,000
1936	36,654,000	35,880,000	*774,000	* 2	36,654,000	.....	31,713,000	4,167,000	8,690,000
Increase, 1937	5,867,000	3,637,000	.....	....	5,867,000	.....	1,731,000	1,906,000	†53,000
	16 0%	10 1%	.....	....	16 0%	.....	5 4%	45 7%	† 6%
Eight months— Gas Oil, Distillate Fuels and Residual Fuel Oil¶									
1937	323,538,000	318,184,000	*5,354,000	*1.7	306,955,000	16,583,000	288,634,000	29,550,000	112,372,000
1936	291,563,000	282,698,000	*8,865,000	*3 1	279,786,000	11,777,000	260,312,000	22,386,000	112,849,000
Increase, 1937	31,975,000	35,486,000	.....	....	27,169,000	4,806,000	28,322,000	7,164,000	†477,000
	10 9%	12 6%	.....	....	9 7%	40 8%	10 8%	32 0%	† 4%
Eight months— Gas Oil and Distillate Fuels									
1937	94,188,000	90,955,000	*3,233,000	*3 6	93,662,000	526,000	71,281,000	19,674,000	25,952,000
1936	82,247,000	74,532,000	*7,715,000	*10 4	82,213,000	34,000	61,221,000	13,311,000	27,645,000
Increase, 1937	11,941,000	16,423,000	.....	....	11,449,000	492,000	10,060,000	6,363,000	†1,693,000
	14 5%	22 0%	.....	....	13 9%	.....	16 4%	47 8%	†6 1%
Eight months— Residual Fuel Oils									
1937	229,350,000	227,229,000	*2,121,000	* 9	213,293,000	16,057,000	217,353,000	9,876,000	86,420,000
1936	209,316,000	208,166,000	*1,150,000	* 6	197,573,000	11,743,000	199,091,000	9,075,000	85,204,000
Increase, 1937	20,034,000	19,063,000	.....	....	15,720,000	4,314,000	18,262,000	801,000	1,216,000
	9 6%	9 2%	.....	....	7 9%	36 7%	9 1%	8 8%	1 4%
Eight months— Lubricating Oils									
1937	23,297,000	23,354,000	57,000	.2	23,297,000	.....	15,908,000	7,446,000	6,426,000
1936	20,286,000	20,583,000	297,000	1 4	20,286,000	.....	14,947,000	5,636,000	6,730,000
Increase, 1937	3,011,000	2,771,000	.....	....	3,011,000	.....	961,000	1,810,000	†304,000
	14 8%	13 5%	.....	....	14 8%	.....	6 4%	32 1%	†4 5%
Eight months— Petroleum Wax (Lbs.)									
1937	366,338,000	361,706,000	*4,632,000	*1 3	343,000,000	23,338,000	202,598,000	159,108,000	115,266,000
1936	322,581,000	320,368,000	*2,213,000	* 7	311,640,000	10,941,000	201,462,000	118,906,000	116,888,000
Increase, 1937	43,757,000	41,338,000	.....	....	31,360,000	12,397,000	1,136,000	40,202,000	†1,622,000
	13 6%	12 9%	.....	....	10 1%	113 3%	.6%	33 8%	†1 4%

*Excess supply †Decrease. ‡Crude oil only. §Includes finished, unfinished refinery, gasoline and natural gasolines. ¶Gas oil and fuel oil equals gas oil and distillate fuels plus residual fuel oils. Note: Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products are based on refinery shipments.

Crude Oil Run to Stills and Total All Oils (Bbls.)

Eight months—	Total imports§	Total exports§	Total crude to stills	Per cent yield gasoline‡	Nat. gasoline production	Total supply all oils*	Total demand all oils*	Stocks all oils July 31
1937	38,702,000	110,708,000	776,945,000	45 5	31,338,000	917,989,000	877,108,000	559,527,000
Daily average	159,267	455,588	3,197,305	....	128,963	3,778,000	3,609,000	.....
1936	36,847,000	84,722,000	701,923,000	46 4	26,846,000	788,389,000	787,923,000	542,166,000
Daily average	151,634	348,650	2,888,572	....	110,477	3,231,000	3,229,000	.....
Increase, 1937	1,855,000	25,986,000	75,022,000	....	4,492,000	129,600,000	89,185,000	17,361,000
	5.0%	30.7%	10.7%	....	16.7%	16.4%	11 3%	32 %

*Total all oils includes crude and refined products, natural gasoline and benzol. †Decrease. ‡Includes natural gasoline blended at refineries. §Includes crude oil and refinery products. In case of imports includes receipts in bond and for domestic use. All data based on Bureau of Mines reports.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Use for Volcanic Ash in Drilling Mud

I am trying to locate an article or articles setting forth the different ingredients ordinarily used in the preparation of drilling muds. As I recall one of these ingredients often used is volcanic ash or powdered pumice. I am looking for a market for volcanic ash and know it is often used in some way in concrete. Can you give me reference to the articles I need?—I. L. H.

The use of volcanic ash as a drilling mud or an admixture is not common because its characteristics are such as not to have desired qualities for drilling fluid. It is a glassy, vitrified material and if added to mud would act as an inert mass and probably tend to settle out quickly something undesirable in a mud used for rotary drilling.

On the other hand the altered volcanic ash known as bentonite has properties which add to the quality of drilling mud and is quite generally used. Bentonite is a clay, the particles of which are extremely fine, some being colloidal in size. It is found in Texas, Arizona, Tennessee, California, Wyoming, South Dakota and western Canada and elsewhere. The accepted explanation of its origin is that it is formed from volcanic dust. When an eruption of a volcano occurs some of the molten lava is blown for hundreds of miles in the form of dust. This volcanic dust, at the time of its ejection from the volcano, is in intimate contact with hydrochloric acid, hydrofluoric acid and sulfur dioxide gases. The action of these corrosive gases upon the lava dust results in rendering the particles readily susceptible to the action of weathering, causing the leaching out of the more soluble constituents, leaving a residue consisting mainly of silica and aluminum, having a very great surface due to fineness and method of formation. It is this large amount of surface which gives bentonite its great water absorptive properties, causing it to swell six to eight times its original volume.

In a professional paper No. 154 Messrs. Ross, Miser and Stephenson discuss "Water-laid Volcanic Rocks of Early Upper Cretaceous Age in southwestern Arkansas, southeastern Oklahoma, northeastern Texas," the following analyses of trachyte, bentonitic clay from Mine Creek, Howard County, Ark., and related clays is given.

	1	2	3	4
SiO_2	62 97	45 12	47 28	48 80
Al_2O_3	19 00	28 24	20 27	21 08
Fe_2O_3	{	{ 4 12	8 68	92
FeO	{ 1 13	{		
MgO	26	2 32	70	4 84
CaO	54	88	2 75	1 36
Na_2O	2 86		97	{
K_2O	10 80		trace	{ (a)
H_2O—	72	18 72	19 72	20 92
H_2O+	1 26			
TiO_2	26			
P_2O_5	10			
Total	99 90	99 40	100 37	97 92

a About 2 per cent alkalies.

1. Trachyte, Coleman Creek, Howard County, Ark. George Steiger, analyst.

2. Bentonitic mineral concentrated from bentonite derived from trachytic pumice. Mine Creek, Howard County, Ark. Earl V. Shannon, analyst.

3. Clay mineral from Beidell, Colo. Edgar T. Wherry, analyst. Larsen, E. S. and Wherry, E. T. Washington Acad. Sci. Jour. vol. 7, p. 213, 1917.

4. Bentonitic mineral concentrated from bentonite, Ardmore, Nebr. Earl V. Shannon, analyst.

The analyses show the chemical relation of bentonitic mineral to the rock from which it was derived. Analysis 1 represents the porphyritic trachyte with a very fine crystalline ground mass, but the relation of pumice to trachyte and the identity of the associated phenocrystis indicate that one was the glassy and the other the crystalline phase derived from the magma. The norm of the trachyte shows that it was a highly alkalic rock with less than 4 per cent of quartz and indicates the Arkansas bentonite was derived from a rock low in quartz and high in alkalies. No analyses have previously been available of material that was known to have altered to bentonite, but the presence of the igneous rock minerals has led to the belief that bentonite was derived from glassy rocks high in alkalies and less silicic than normal rhyolites.

The use of bentonite in drilling mud is covered by patent.

Characteristics of Oil Country

Could you give me the name or names of persons or companies capable of giving me information as to the characteristics of the formation of ground under which there may be found oil?—F. B. S.

In reply to your question it is our suggestion that you get in touch with some good geologist, familiar with the area in which you are interested.

Your question indicates that you have in mind some surface condition which will indicate the presence of gas or oil beneath the area and contrary to the claims of a number of persons there is no commercial method so far as we now know by which it is possible to predict with certainty that there is gas and oil in place in some hidden formation.

Geophysics is a means of determining the shape and position of buried formations, known in the oil industry as "structures" and from past experience it is known that in such structures gas and oil may accumulate. But to determine accurately in advance of drilling whether the reservoir rocks actually have been charged with gas and oil is very difficult and experience has proven that only the drill can prove or disprove this fact.

So if you are looking for someone to tell you whether there is gas or oil or both under a piece of land it is our advice to go slow. You can write to the State Geologist at Urbana, Ill., if you are interested in Illinois land and secure from him information about gas and oil possibilities in various sections of the state. These reports are based upon geological facts but they do not state in detail just where one may drill to find either gas or oil. There are favorable and unfavorable areas but again they cannot be classified by ground characteristics nor by type of formations for gas and oil has been found in igneous rocks which geologists tell us were forced into the place where found in a heated condition and it would therefore seem to be the least likely place in which to find hydrocarbons which are very volatile. But it must be remembered that after these igneous rocks cooled pore spaces may have developed and into those pores gas and oil may have migrated from adjacent source beds. There are numerous places where gas and oil has been found in igneous and metamorphic rocks and many of them are listed in an article published in Vol. XVI, page 719 of the American Association of Petroleum Geologists Bulletin.

Effect of Temperature on Muds

There is a well drilling near here below 12,000 feet, which shows a temperature of about 200° F. It is claimed this excessive heat has an effect on the drill mud which prevents wa'ling up of the hole. Can any information be had on this problem, and if so where?—P. P. C.

In discussing control of plastering power of rotary mud in "Drilling Muds," by P. Evans and A. Reid, issued as a Transaction of the Mining and Geological Institute of India, it is stated:

The types of sheath formed by different muds under different conditions have not been fully investigated. It seems likely the sheath depends on (a) the nature of the formation and the temperature, neither of which are controllable, and (b) viscosity, thixotropy, surface tension, particle size, salinity, alkalinity, type and proportion of solids, and amount of "free" water in the mud, which can to some extent be controlled, and (c) the differential pressure, also subject to control.

"Experiments by the authors suggest that with some muds the coat built up at 160° F. is less adherent than one built up at 100° F."

In another chapter in this book, discussing the effect of temperature on viscosity, C. B. Kennedye is quoted as stating "a minimum viscosity at 100-110° F. for a Gulf Coast mud, and suggested the use of exhaust steam to warm mud which is otherwise too viscous." Also G. L. Ratcliffe, using a Stormer viscometer at 600 r.p.m., found a viscosity minimum near 130° F. On the other hand, bentonite suspensions exhibited an increase in viscosity which became very marked above 160° F.

"An extensive series of experiments has been carried out by G. F. Wilson, who used a Digboi type paddle viscometer and found that on heating a mud made from shale the yield value rose rapidly to a fairly constant figure—the rise being greater for the more viscous heavier muds. On cooling, the yield value decreased immediately (although the mud was still within the range at which the yield value had been constant during heating) and reached the original figure before the mud cooled to the original temperature, thereafter remaining approximately constant.

"If the mud was made alkaline by chemical treatment, a difference was noticed. With a mud containing a little waterglass, the rate of rise in yield value was rather greater than with plain mud, and in most instances continued to a higher temperature. With more waterglass the temperature change became much less noticeable. With soda ash or sodium tannate as the reagent, the temperature change was much more pronounced, both in the rate of rise and the range of temperature over which the rise was exhibited; on cooling, a permanent rise in yield value was generally observed, especially with the more alkaline muds."

Articles on this general subject that may be of interest have been published in The Oil and Gas Journal of March 28, 1935, by J. F. Dodge and A. C. Frietsche, and April 4, 1935, by C. B. Kennedye.

To answer your direct question—if the mud is thickened by heating, which is indicated by the above references, then drilling will be more difficult. If the mud is thick it will not plaster the side walls of the hole.

REFINERY TUBE LIFE EXTENDED WITH

The life of cracking still and heat exchanger tubes is extended far beyond that of carbon steel tubes under similar service conditions because of its greater resistance to high temperatures and pressures.

DM Tubes possess higher creep resistance than any other low alloy steel tubes, combined with great reserve strength and excellent oxidation and corrosion resistance. You will find these properties particularly valuable where carbon steel tubes are failing due to severe temperature and pressure conditions. Based on the results of several years' service, users of TIMKEN DM Tubes can reasonably look forward to at least twice the life of carbon steel tubes where the service conditions are similar.

DM economies include fewer tube replacements, less interruption of production and lower initial cost as compared with other alloy tubes capable of doing a comparable job.

Let us quote on your tube requirements.

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THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

Manufacturers of Timken Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; Timken Alloy Steels and Carbon and Alloy Seamless Tubing; and Timken Rock Bits.

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SEAMLESS STEEL TUBES

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

Analyses of Clay Before and After Activation For Contacting

If available, will you please furnish analyses of contact clay both in the natural condition and after it has been prepared for use?—D. N. L.

Complete analyses, both chemical and physical, have been reported by S. R. Funsten, of the Filtrol Co., as reproduced in the table.

PHYSICAL AND CHEMICAL DATA FOR COMMERCIAL CONTACT CLAYS

Clay—	"A" Domestic activated clay (per cent)	"B" Domestic natural clay (per cent)	"C" Domestic natural clay (per cent)
Analyses (dry basis):			
Silica	71 71	67 70	68 30
Titania	0 05	0 66	0 78
Alumina	19 78	12 73	24 20
Ferric oxide	1 20	4 31	2 68
Ferrous oxide	0 07	0 23	0 22
Manganous oxide	0 01	0 03	0 01
Magnesia	5 13	11 62	1 31
Lime	0 27	1 63	0 75
Soda	0 06	0 03	0 18
Potash	0 06	0 81	1 28
Phosphoric anhydride	0 06	0 15	0 11
Carbon dioxide	None	0 06	0 06
Chlorine	0 03	0 04	0 03
Sulfuric anhydride	0 97	0 03	0 03
Total	99 40	100 03	99 94
Physical inspections:			
Volatile, per cent	21 0	16 0	15 0
Volume weight, lbs./cu. ft.	39 0	26 0	36 0
Mesh, per cent pass 200	93 0	94 0	92 0
Decolorizing efficiency, per cent (compared to activated clay on lubricating stocks)	100 0	20–30	25–35
Bloom producing property	Good	Medium	Medium
Oil retention,* per cent (total oil and asphalt) basis, clay charge	50 0	75 0	38 0
Press rate, per cent (compared to activated clay)	100 0	120 0	110 0

*This should not be confused with "recoverable oil retention."

Reference: S. R. Funsten, Recent Development in the Use of Contact Clays, A.P.I., Colorado Springs meeting, June 2, 1937.

Contraction Not Normal For Blends of Oil and Natural Gasoline

During the blending of 22° A.P.I. crude oil and absorption natural gasoline shrinkage in volume was noticed. Several experiments seem to confirm this but it is possible the difference is due to evaporation. I would appreciate having any matter available on this subject. —C. J. S.

The blending of a low-gravity oil, having very little vapor pressure, with a highly volatile product, such as natural gasoline, is not known to involve any special condition that would result in a natural shrinkage of the final mixture. There are numerous examples of contraction in volume when definite volumes of different liquids are mixed. The resulting loss is often due to the fact that one liquid is soluble in the other. In other instances chemical combination takes place.

The two liquids, oil of 22° A.P.I. gravity and 85° A.P.I. gravity gasoline, contain hydrocarbons which in the main belong to the same general class. There appears to be no reason why these liquids should not blend without loss when reasonable precautions are observed to prevent evaporation. Poor blending of natural gasoline usually results in loss. There should be complete mingling of the two liquids. If the facilities for handling blends of crude oil and natural gasoline are adequate there should not be any loss. The refineries frequently run mixtures of this character, the limiting factors being tower capacity and other means for processing the vapors and gas.

High Octane Number Material Concentrated in SO_2 Extract

Can you furnish any information covering a method for increasing the octane rating of motor fuel distillates by SO_2 treatment?—T. S. E.

There was a recent paper by Saegebarth, Broggini and Steffen, describing experimental work with SO_2 treatment of straightrun naphtha for the extraction of high-octane constituents. The information has been arranged from this paper.

Three naphthas examined included Mid-Continent naphtha with 9.5 per cent aromatics, a Sumatra naphtha containing 19.8 per cent aromatics, and a South Texas stock with 31.2 per cent aromatics. These three samples comprise straightrun naphthas of about the lowest and highest aromatic content generally available.

Tests indicated that straightrun naphthas having initial boiling points approximately 200° F. were suitable for solvent extraction.

For the treatment of the Mid-Continent naphtha, 40 per cent by volume of solvent was used at 0, —20, —40, and —60° F., respectively. Since the charging stock contained only about 10 per cent aromatics and unsaturates, the yields of extracts were low—ranging from 12.5 to 9.1 per cent by volume. However, the aromatic content of these blending stocks was high, varying between 71 and 89 per cent by volume; consequently, they gave high C.F.R. octane numbers—from 82 to 91—and high Kauri gum numbers, from 72 to 88.

The Sumatra charging stock boiling between 190 and 321° F.; 55 per cent by volume of sulfur dioxide was used for the extraction at —40° F., which yielded 22 per cent by volume of extract with 90 C.F.R. octane number and 89 Kauri butanol number. In the extraction at 0° F., 85 per cent sulfur dioxide was employed on account of the larger amount of blending stock extractable at this temperature. The blending stock, amounting to 30 per cent by volume of the charging stock, shows an octane number of 82 and a Kauri butanol number of 75.8.

Tests on the South Texas straightrun naphtha were made with 70 per cent by volume of sulfur dioxide at 0, —20, —40, and —60° F. Since 31 per cent by volume of aromatics was present in this charging stock, the yield of extracts was quite high—ranging from 46.5 per cent at 0° F. to 34.0 per cent at —60° F. C.F.R. octane numbers ranging from 80 to 91, and Kauri gum numbers from 69 to 82. Aniline points of the extracts lie between —12.8 and —19.3° C.

Further information may be obtained from the reference, where the complete descriptions of the experiments are given.

Reference: Saegebarth, Broggini and Steffen; High-Octane-Number Blending Stocks Produced by Solvent Extractions, Amer. Petrol. Inst., Colorado Springs, Colo., June 2, 1937.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Benzoic acid

Use—Antiferment and mould preventative for greases and special preparations.

Form—Almost white, lustrous crystals.

Odor—None.

Formula—C_6H_5COOH.

Specific gravity—1.2659.

Melting point, °F.—251.1.

Boiling point, °F.—480.6.

Solubility—1 gram in 2.3 ml. alcohol; 1 gram in 275 ml. water. Both at room temperature.

LIMITATIONS

Color	Nearly white
Odor	None
Melting point, max., °F.	252.5

Analyses of Michigan Crude Oils

Could you furnish us with analyses showing the contents and character of the oils produced in Michigan? We want to know the gasoline yield and the octane number of the gasoline.—G. A. C.

E. L. Garton, U. S. Bureau of Mines, has made an extensive report covering the quality of the various crude oils produced in Michigan, from which this information is arranged.

PROPERTIES OF MICHIGAN CRUDE OIL

Field—	Gravity °A.P.I.	Sulfur, Per cent	Carbon residue per cent	Visc. at 100° F., seconds	Gasoline or naphtha fraction: Per cent	Gasoline or naphtha fraction: Gravity
Birch run	42 3	0 25	0 9	36	38 6	61 8
Saginaw	44 3	24	7	34	44 0	61 0
Muskegon	37 4	.56	2 1	44	27 9	61 3
West Branch	34 0	.35	2 8	52	28 0	58 9
Edmore	43 2	.11	.5	35	41 1	60 2
Denver Twp.	43 8	.12	1 1	36	36 1	64 8
Muskegon	36 0	1 03	2 2	45	26 0	59 5
West Branch	32 7	.52	4 6	60	22 0	60 8
Crystal	41 3	.37	.8	37	36 5	64 5
Porter	40 6	.26	1 5	38	30 8	64 5
Mount Pleasant (Greendale Twp.)	41 5	.13	1 3	39	30 9	64 2
Leaton	43 0	.16	1 1	37	33 9	65 0
Vernon	44 1	.30	.9	39	34 9	65 6
Beaverton	41 3	.16	1 4	38	32 7	63 9
Monroe County	42 1	.18	.6	43	28 9	65 3
Bradford (Pa.)	45 2	Less than 0 1	.3	39	37 6	62 6

The pourpoint is below 5° F. in all oils.

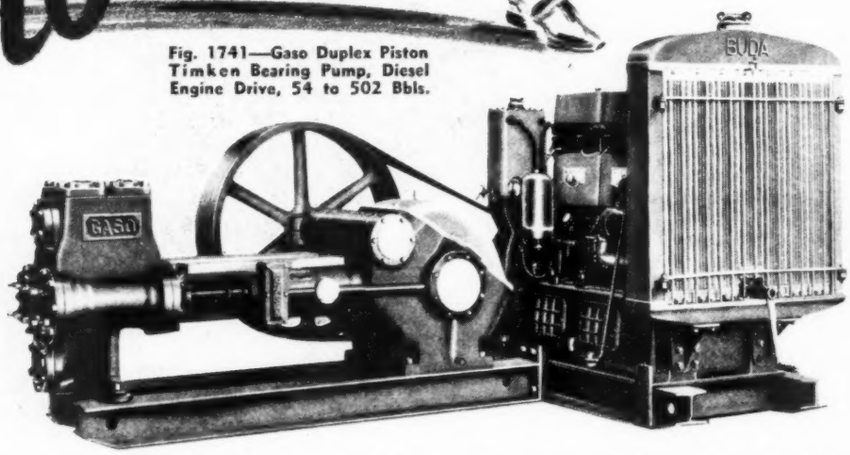
According to the Bureau of Mines system these oils are classified paraffin-intermediate-base, wax bearing. They yield 25 to 35 per cent gasoline which is decidedly paraffinic, having an octane rating varying from 15 to 30. The combined kerosene and gas oil fractions run 25 to 35 per cent. The lubricating stock is 12 to 15 per cent and residuum from 9.3 to 33.6 per cent of 13.3 to 24.3° A.P.I. gravity.

Complete details concerning each sample may be obtained from the reference.

Reference: E. L. Garton, Analyses of Crude Oils from Some Fields of Michigan, U. S. Bureau of Mines, R. I. 3346, 1937.

Hail to the Champs

Fig. 1741—Gaso Duplex Piston Timken Bearing Pump, Diesel Engine Drive, 54 to 502 Bbls.



● Eight hopeful teams take the field in April. ONE captures the championship in October. Analyze the winner and you will find that it's a team which, like GASO PUMPS, has the balance and power to do a good job every day and the reserve strength to cope with emergencies. Have you a copy of our catalog? . . . Gaso Pump & Burner Mfg. Co., Tulsa, Okla. Export Office: 149 Broadway, New York.

Complete Gaso Condensed Catalog in 1937 Composite Catalog

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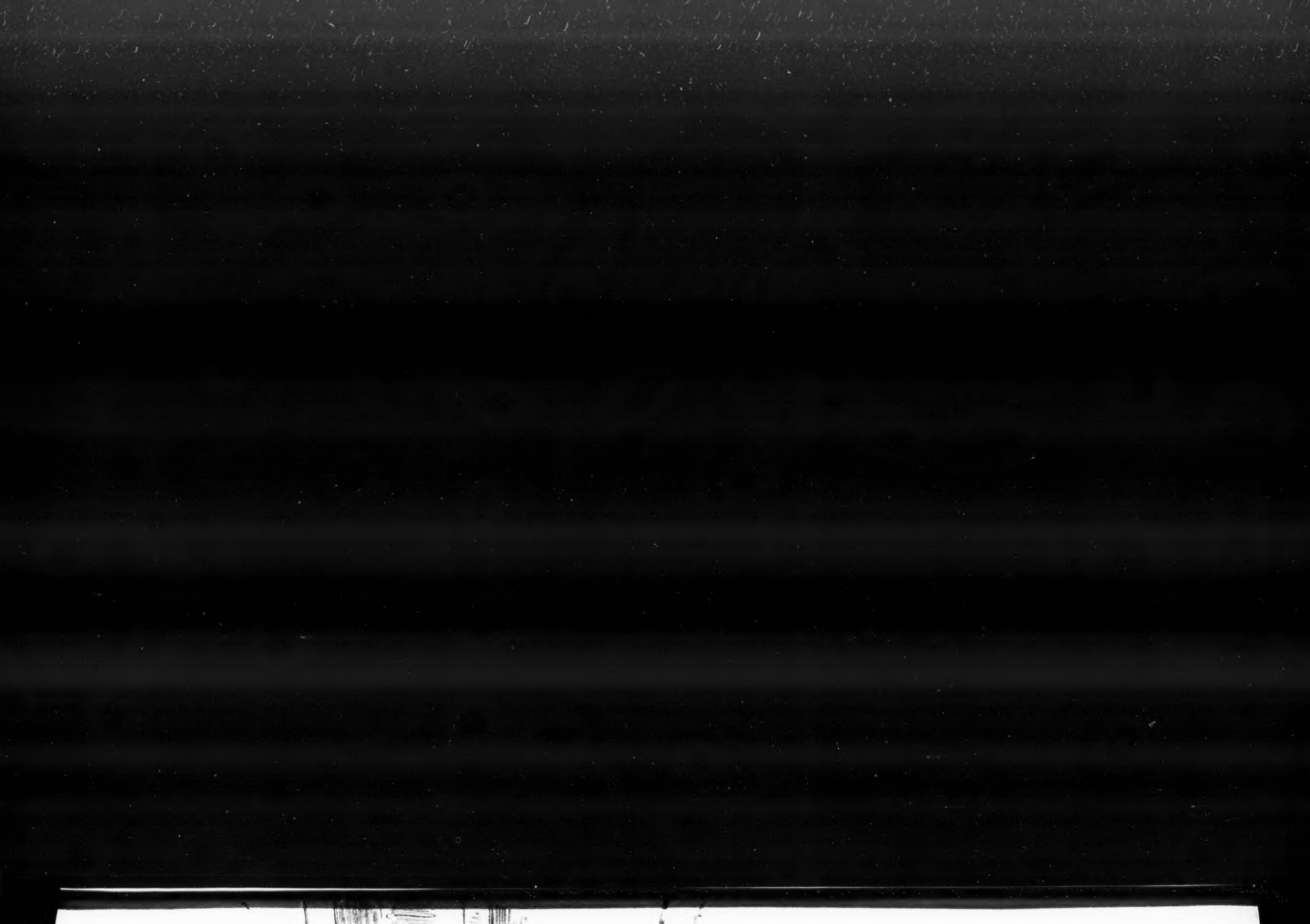

FIELD OPERATIONS

Summarizing the Week's Developments

A 4,437-bbl. well was completed in the Logan County sector of the Lucien field, n Oklahoma. A wildcat on the Centrahoma structure in Coal County flowed 154 bbls. f oil in 20 minutes, died, and was being swabbed. A Hughes County wildcat near Calvin showed 6,000,000 feet of gas on drill stem test. Water intrusion dimmed prospects for a wildcat 1 mile east of the Billings pool, Noble County.

KANSAS

Wildcat pool openers in section 10-17-13w, Barton County, and section 1-11-18w, Ellis County, Kansas, were near completion. A new producing area was opened in section 11-27-13w, Pratt County. The Steuder pool was extended one-half mile northward by one of 10 wells completed in Barton County. The Halstead pool, Harvey County, was extended one location west by a well that flowed 911 bbls. of oil in 3 hours.

NEW MEXICO

The Hardy area northwest of the Cooper pool in Lea County, New Mexico, increased in importance when a well in section 16-23-36, flowed 1,800 bbls. of oil naturally in 15 hours with drill pipe in the hole. It is in a district where only small production had been expected.

CALIFORNIA

A well southeast of the Greeley field, Kern County, California, and another northwest of that field, promise extensions in both directions. Two tests in the Santa Maria field have logged the same oil sand, one in section 19-10-34, and the other in section 13-10-35, and appear assured of being commercial producers. The North Belridge field is promised an important extension. Long Beach harbor commissioners have passed legislation to permit drilling in that part of the Wilmington field and a host of drilling wells are expected this fall and winter.

TEXAS

The Seminole field in Gaines County, Texas, was extended. The Goldsmith field in Ector County was extended westerly and defined on southwest. The Odessa field in Ector County was extended 1 mile south. In North Texas, 3 miles north of the old K.M.A. field in Wichita County, a deep test is showing good indications of production and 1½ miles north of the South Vernon pool in Wilbarger County a test is showing oil. In the East Central Texas area the Grapeland structure in Houston County, heretofore a gas-distillate field, has a 48-gravity oil well. In the Gulf Coast district the Sandy Point pool in Brazoria County and the Hardin pool in Liberty County were extended. On the Louisiana side of the Gulf Coast another 10,000-foot productive sand has been opened in the Jeanerette field in St. Mary Parish. New pools were opened in Bee County and in the Laredo district in Southwest Texas, and a gas field in Jim Hogg County.

TEX-LA-ARK

Columbia County, Arkansas, is given promise of an oil pool in section 8-16s-22w. Six new wells are scheduled for the 7,600-foot horizon in the Schuler area in Union County, Arkansas, following a recent deep completion which started at 2,600 bbls. a day.

MICHIGAN

A 1,000-bbl. well was completed in Hay Township, Gladwin County, Michigan, east of the North Buckeye pool.

Completions in All Fields

(Week Ending October 16, 1937)

	Oil	Gas	Dry	Total	1937 total comp. to date	1936 total comp. to date
N. Y., Pa., W. Va.	87	12	11	110	3,546	3,038
Ohio	4	7	6	17	940	611
Indiana	0	0	0	0	87	153
Kentucky	23	6	0	29	521	241
Illinois	12	0	4	16	183	33
Michigan	18	1	7	26	632	666
Kansas	39	4	12	55	2,071	1,338
Oklahoma	33	3	11	47	2,171	2,079
Texas:						
North Central Texas	36	0	34	70	2,261	2,192
West Texas	32	1	9	42	2,144	1,249
Texas Panhandle	21	2	2	25	616	527
East Texas	40	0	1	41	1,879	2,092
East Central Texas	12	1	1	14	569	291
East Texas Border	8	0	0	8	280	100
Gulf Coast Texas	27	2	2	31	1,240	991
Southwest Texas	37	1	18	56	2,613	2,240
Total Texas	213	7	67	287	11,602	9,682
North Louisiana	8	0	0	8	522	547
Gulf Coast Louisiana	6	0	2	8	362	381
Total Louisiana	14	0	2	16	884	928
Arkansas	8	0	1	9	128	73
Montana	6	0	1	7	183	195
Wyoming	1	0	2	3	87	94
Colorado	0	0	0	0	17	21
New Mexico	7	0	2	9	584	461
Utah	0	0	0	0	2	5
California	12	0	3	15	1,201	915
Total United States	477	40	129	646	24,839	20,533
Total previous week	469	38	124	631		
Difference	8	2	5	15		

Outstanding Fields—Highlights

(Week Ending October 16, 1937)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Hastings	6	21	12	5,550	341	24,243
McCampbell	3	12	3	195	68	3,600
Saxet	3	21	2	310	550	42,900
Benavides	15	15	3	490	75	5,550
East Texas	44	104	40	1,816	26,719	488,498
Talco	5	34	11	3,385	508	32,900
Ector County	12	97	4	6,249	667	31,450
Winkler County	11	48	5	6,145	1,451	45,300
OKLAHOMA						
Fitts	4	37	4	1,846	899	79,950
Billings	1	9	0	0	51	7,100
KANSAS						
Ellis County	7	39	4	6,432	222	7,195
Barton County	11	47	10	4,875	238	13,050
Russell County	8	54	8	8,925	893	35,925
Rice County	7	45	3	652	997	42,190
NEW MEXICO						
Lea County	14	112	7	1,952	1,492	96,030
LA-TEX-ARK						
Rodessa, Ark.	6	18	8	4,156	23	10,597
Rodessa, La.	5	8	1	192	413	44,504
Rodessa, Tex.	4	20	2	240	352	28,350
Lisbon, La.	2	13	6	4,760	133	5,372
Jennings, La.	1	13	0	0	71	10,864
MICHIGAN						
Buckeye	11	56	11	8,588	247	24,981
CALIFORNIA						
Wilmington	6	23	2	362	289	59,861
ILLINOIS						
Central Illinois	27	99	12	2,808	147	14,400

Eastern Field Report

By STAFF CORRESPONDENT

MEAGER FIELD RESULTS IN LOWER EASTERN DISTRICTS

PITTSBURGH, Pa., Oct. 18. — Twenty-eight operations were completed in the lower eastern fields during the past week, of which 10 were dry holes, 10 gas wells and eight producers with an initial production of 27 bbls. a day. There was completed in West Virginia one fair gas well in the Oriskany sand. In Pennsylvania, drilling operations were started on two wells which will be drilled to the Oriskany sand.

SOUTHEAST OHIO

In section 26, Wayne Township, Columbiana County, the Natural Gas Co. of West Virginia is running a string of 7-inch casing in its deep test on the D. Desellem farm.

In Athens County, the Gibbs Farm Oil & Gas Co. completed No. 2 on their Gibbs lease in section 31, Athens Township, at 1,170 feet in the Berea sand. It was a dry hole.

In Hocking County, the Ohio Fuel Co. drilled their test on the Sunday Creek Coal Co. in the SE quarter section 10, Ward Township, to the Clinton sand at 3,350 feet. It is a gas well gauging 300,000 feet daily. In the NW quarter of section 13 the Kachelmacher Estate completed their No. 6 on the Nelsonville Coal & Land Co. in the Berea sand at 922 feet and it was dry.

In Licking County, George Lacknett and others drilled a second test on the W. W. Reynolds farm in section 16, Perry Township, to the Berea sand at 772 feet. It is good for 4 bbls. In section 15, Rutledge and Mossholder Oil & Gas Co. completed No. 10 Teagarden in Berea sand at 678 feet. After shot it produced 1 bbl. per day. In Mary Ann Township Mary Ann Oil Co. completed No. 2 P. F. Shannon in section 15 in Berea sand at 772 feet, and it is good for 3 bbls. a day.

In Medina County, E. R. Edson & Son completed a well on the W. H. Wideman farm in Chatham Township. It was drilled to 561 feet in the Berea sand and made 2 bbls. a day after shot.

In Washington County, Blind Brothers completed a dry hole at 426 feet on the Clifford Blind farm in Windsor Township.

SOUTHWEST PENNSYLVANIA

In Aleppo Township, Greene County, Pennsylvania, Morris Oil & Gas Co. completed No. 5 on the Silas Barnhart farm and it is showing for 10 bbls. a day. The Fifth sand was at 3,358-66 feet, with the oil at 3,360-64 feet. Total depth, 3,374 feet.

In Center Township, Greene County, Manufacturers Light & Heat Co. completed No. 2 W. L. Fordyce at 3,534 feet. The Bayard Stray was at 3,506-17 feet, with gas in this sand gauging 80,000 feet a day.

In Gilmore Township, Greene County, H. D. Freeland and others completed a test on the S. A. Coen farm at 3,234 feet. The Bayard sand was at 3,187-91 feet. The gas in this sand gauged 500,000 feet a day but soon blew down to 250,000 feet.

In Wayne Township, Greene County, the Equitable Gas Co. completed their No. 1 M. Cummins at 3,143 feet and it was a dry hole. This was a Gordon sand gas well drilled deeper. The Gordon sand gas now tests 134,000 and will be produced.

In Peters Township, Washington County, Benedum & Trees have completed drilling deeper their test on the Mary Boone farm at 4,718 feet and it was dry.

Greene County Drilling

In Aleppo Township Union Gasoline & Oil Corp. is fishing at 1,925 feet in No. 5 T. M. Gallentine. Burleigh Wright and others are rigging up on the J. W. Rush farm. J. G. Cochran is drilling at 1,060 feet in No. 4 John Strope.

In Center Township, Carnegie Natural Gas Co. is drilling at 3,222 feet in No. 2 Orndoff. Nineveh Thirty-foot sand was at 3,180-3,205 feet and was dry. This well will be carried to the Bayard sand. This company is also drilling at 1,810 feet in No. 3 Milliken. Rutan Oil Co. is drilling at 1,430 feet in No. 4 Harvey. Charles Mong is moving in the tools to drill No. 2 Jesse L. Metz (Weir). Union Gasoline & Oil Corp. is drilling at 3,438 feet, in the Fifth sand, No. 4 Mabel Bodley (Cook & Braddock).

In Dunkard Township, Convex Glass Co. is drilling Big Injun sand at 1,447 feet in No. 1 Van Voorhis. In Morris Township, William Smith and others are drilling at 1,550 feet on the Phillip Fonner heirs farm. In Richhill Township, O. I. Dille and others are drilling No. 1 J. M. Phillips at 1,975 feet. J. L. Blair is building a rig for No. 10 W. J. Bryan. In Washington Township the Equitable Gas Co. is drilling the Pratt Yeager test at 310 feet. The Carnegie Natural Gas Co. made location for No. 2 Sadie A. Conner. In Wayne Township, Manufacturers Light & Heat Co. is drilling at 240 feet in their J. N. Johnson test. Equitable Gas Co. is rigging up No. 4 S. C. Brock. Peoples Natural Gas Co. is drilling deeper at 2,970 feet in No. 2 Lewis Park.

Washington County

In Amwell Township, Carnegie Natural Gas Co. is down 841 feet in their No. 4 N. B. Redd. Manufacturers Light & Heat Co. is drilling deeper at 2,990 feet in No. 1 Ella Johns. The Union Gasoline & Oil Corp. is down 2,425 feet in No. 8 A. O. VanKirk. In North Strabane Township, McClelland Brothers are drilling their fee lease at 2,650 feet. Keystone Gas Co. is down 1,527 feet on the J. T. Beabout farm. In Morris Township, the Duquesne Gas Corp. is down 1,670 feet in No. 8 Carter heirs. In Peters Township, R. M. Duddin & Co. is spudding No. 2 W. J. Johnston. In Union Township, Beedle & Clark are drilling their Martin Rankin at 1,900 feet. In South Franklin Township, Carnegie Natural Gas Co. is rigging up to drill No. 3 Alberta Iams. Dunn-Mar Oil & Gas Co. is drilling No. 4 J. T. Baldwin at 1,440 feet. New Oil & Gas Co. is building rig for No. 2 Clarissa Ramsey. In South Strabane Township, Carnegie Natural Gas Co. is drilling at 1,330 in No. 1 C. M. Guthrie. The Penn-Ohio Gas Co. is drilling at 1,842 feet in No. 2 Porter Brothers.

Deep Tests

In Shenango Township, Lawrence County, the Carnegie Natural Gas Co. is drilling at 4,780 feet on the W. A. Currie farm. In Hampton Township, Allegheny County, South Penn Oil Co. is still fishing in the Christian Z. Schove well. In Mount Pleasant Township, Washington County, Norwood P. Johnston and others on the James McBurney farm have fished out 700 feet of sand line lost in the hole. In South Union Township, Fayette County, Potter Development Co., William Snee and others are drilling at 1,575 feet in No. 2 Summit Hotel. In North Union Township, Frank Fairman and others are still shut down at 900 feet in No. 1 Louis Varndell.

In South Beaver Township, Beaver County, John T. Galey is drilling at 130 feet in No. 1 James Tennis heirs. T. W. Phillips Gas & Oil Co., in the same Township, is spudding at 40 feet in No. 1 James Smith.

WEST VIRGINIA

In Marion County, Victor Oil & Gas Co. completed No. 2 Talkington, in Lincoln district, at 1,847 feet, in Big Injun sand. It will make 1 bbl. a day. In Monongalia County, Harry L. Tennant completed No. 1 F. D. Jones in Clay district. It was drilled to 3,162 feet, in the Fifth sand, and is good for 5 bbls. daily. In Pleasants County, Simon Axelroad and others completed No. 4 Mary Ratcliff, in Washington district, at 827 feet, in Salt sand, and it is showing for 1 bbl. a day.

Gas Wells

In Boone County, the Owens Illinois Glass Co. completed No. 28 Cassingham Coal Land Co. in Scott district at 2,356 feet, through the Berea sand. It is a gas well gauging 485,000 feet a day. This company also completed the No. 23 Allen & Pryor at 2,349 feet, in Berea sand, and it is gauging 105,000 feet a day. In Washington district, O. B. Cunningham and others completed a gas well on the J. T. Ferrell lease. It was drilled deeper from 1,195 feet. The gas was at 1,322-78 feet and at 1,444-47 feet.

In Braxton County, Pittsburgh & West Virginia Gas Co. completed No. 7,627 G. B. Howell in Birch district. Gas was at 2,174-80 and 2,257-60 feet, total depth 2,283 feet. It will make 100,000 feet of gas per day.

In Gilmer County, McCall Drilling Co. completed their E. G. Rohrbaugh well in the Big Injun sand at 1,685 feet and it was dry. This well is in the Glenville Independent district.

In Kanawha County, the Pure Oil Co. completed No. 276 Williams Coal Co. in Cabin Creek district. It is a gas well gauging 1,250,000 feet a day from the Berea sand, total depth 2,956 feet.

In Lincoln County, Kanawha Gas & Utilities Co. completed a gas well on the V. I. Sansom farm in Sheridan district at 3,480 feet. Brown shale was at 2,902-3,465 feet, with gas at 3,165 and 3,315 feet. It gauges 331,000 feet a day.

In Ritchie County, B. F. Gilmore completed a dry hole, No. 1 W. F. Moore, in the Clay district, at 2,051 feet, in Squaw sand.

In Tyler County, the Robert Braden test on the Annie V. Hugus Estate in Union district was dry at 1,717 feet, in Big Injun sand.

In Wetzel County, Carnegie Natural Gas Co. No. 2 Clarence Blatt, in Proctor district, was a dry hole at 2,618 feet.

Oriskany Gas Field

In Kanawha County, Yoake Oil & Gas Co. completed No. 3 Goshorn heirs at 5,193 feet, in Oriskany sand. It is a gas well gauging 353,000 feet a day after shot.

United Fuel Co. made a location in Poca district, Kanawha County, for No. 4,783 on the Nine Chandler farm.

In Elk district, Kanawha County, Columbian Carbon Co. is drilling on the Robert N. Orth farm at 4,539 feet. Same company's Nellie M. Sleath test reached the Corniferous lime at 4,827 feet and is drilling at 4,839 feet. The Corniferous lime was topped at 5,040 feet in the Nora J. Fogarty test and it is drilling at 5,054 feet. In the J. W. Jones test, South Penn reached the Corniferous lime at 4,805 feet and is drilling at 4,834 feet. At the No. 1 B. F. Jones the company is building a rig. In the same district, Poca F. Oil & Gas Co. is down 4,850 feet in No. 2 Canterbury. The Pond Fork Oil & Gas Co. reached 5,063 feet on the Crowder and Thomas lease. Benedum & Trees, Inc., on the S. B. and L. D. Pauley farm, has reached 4,660 feet.

In Poca district, United Carbon Co., in the H. F. Miller test, topped the Corniferous lime at 4,780 feet and is drilling at 4,805 feet. In the Mona Bostic test it is drilling at 4,055 feet. Mullins Gas Co. is drilling at 4,865 feet on the Campbell and Odell land. Glen Oil & Gas Co. is drilling at 4,650 feet on the James A. Haynes farm. United Carbon Co. has completed the rig on the Virgil Tate farm and is rigging up on the A. A. and William Beane farm, and also on the Leah K. Johnson farm.

In Union district, Mullins Gas Co. is drilling at 3,835 feet, Sarah Dawley farm.

Outside Deep Tests

In Jackson County, the United Carbon Co. has cemented the No. 1 Elizabeth Ward Perkins from 5,010 feet to 4,000 feet. Drilling will be resumed when the ce-

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Southwest Texas District

DISTRICT OF LAREDO AND BEE COUNTY REPORT NEW POOLS

By GEORGE WEBER

HOUSTON, Tex., Oct. 18.—Two new fields were opened in Southwest Texas during the past week. Bringing new oil and gas production to the Bee County sector and the Laredo district, respectively, the new discoveries were accompanied by other strikes of importance in widely separated sections of Southwest Texas.

The Luby field is the current feature of lower Gulf coastal development, with recent discoveries greatly enhancing the potential value of the small Nueces County field. Saxet operations have fallen off sharply in the past few weeks, and activity is shifting to smaller fields, namely, Agua Dulce, Clara Driscoll, Midway, McCampbell, etc., in the coastal counties.

Laredo district drilling holds up mainly due to increased schedules in the Benavides, Killam and Oilton fields, as other areas are still relatively quiet. The Fault Line zone is also experiencing some let-up, but activity continues fairly strong in Caldwell and Guadalupe counties.

A new gas field, opened during the week in Jim Hogg County, has been given the name Las Animas by the South Texas Geological Society. The pool was discovered by the Darby Petroleum Co. when their No. 1-B Holbien was brought in through perforations at 1,782½-88 feet to gauge approximately 3,000,000 feet per day. Located 5 miles east of the Henne-Winch-Farias field, 14 miles west of Hebbronville, the new discovery is in the trend of the Cole and O'Hern fields, large production sources in that area. The discovery well was bottomed at 1,789 feet.

Due north of the new Las Animas field, the Oilton-Killam area suffered setbacks during the week, as expected extensions failed. Although six new producers were added to the Oilton field alone, two field tests were abandoned dry, and a wildcat located 4½ miles to the south of the field also failed.

Elsewhere in the Laredo district, nothing of note developed during the week. The Benavides or North Sweden field continues the most active drilling section in the district, with operations spreading to the edges and to outpost tests. One failure in the field is apparent, with the Sun Oil Co. No. 1 Barton Estate coring below 5,600 feet. The test is located on the north edge of production in the field, and since no shows were reported in either sand producing in the pool, the test is apparently a definition of the field as it now stands.

To the northwest the Blanchard No. 1 Puig is being worked over. The semiwildcat early last month extended production in the field about a mile to the northwest and brought in production in the second deeper sand producing in Benavides. This week the well went dead, and operators squeezed perforations made at 5,401½-05 feet to reperforate for recompletion. Altogether, three new wells were brought in in the field, totaling nearly 500 bbls. of initial production.

To the south of the Laredo district, in the lower Rio Grande Valley, a small gasser was blowing out in Starr County, and a deep well was cleaning in Hidalgo County. The Starr County blowout is the Conan Wood No. 1 Wardner Estate, bottomed at 523 feet. The test encountered shallow gas sands at 425-39 feet and 441-61 feet and blew out making about 500,000 feet of gas together with much salt water.

In the La Blanca field of Hidalgo County, the Dee Davenport No. 2 Swallow, located one-half mile north of production in the field, was cleaning into pits showing gas and wash water on a five-sixteenths inch choke. Pressures of 2,800 and 1,500 pounds were recorded on the casing and tubing, respectively, and the well was last reported shut in. Total depth is 7,969 feet. Two other tests are drilling in the field.

Important Showings

A San Patricio County wildcat and the Luby field attracted primary interest of lower coastal operators this week. The former test is the Argo Oil Co. No. 1 Soehnge. Located in the Delgado grant, 1½ miles north of the town of Mathis, the test cored sandy shale at 4,597-4,601 feet which had a slight odor of oil. Operators drilled deeper and topped a second sand at 4,957 feet, where the well attempted to blow out. Mud is being pumped into the hole to kill the well so that operators may drill deeper.

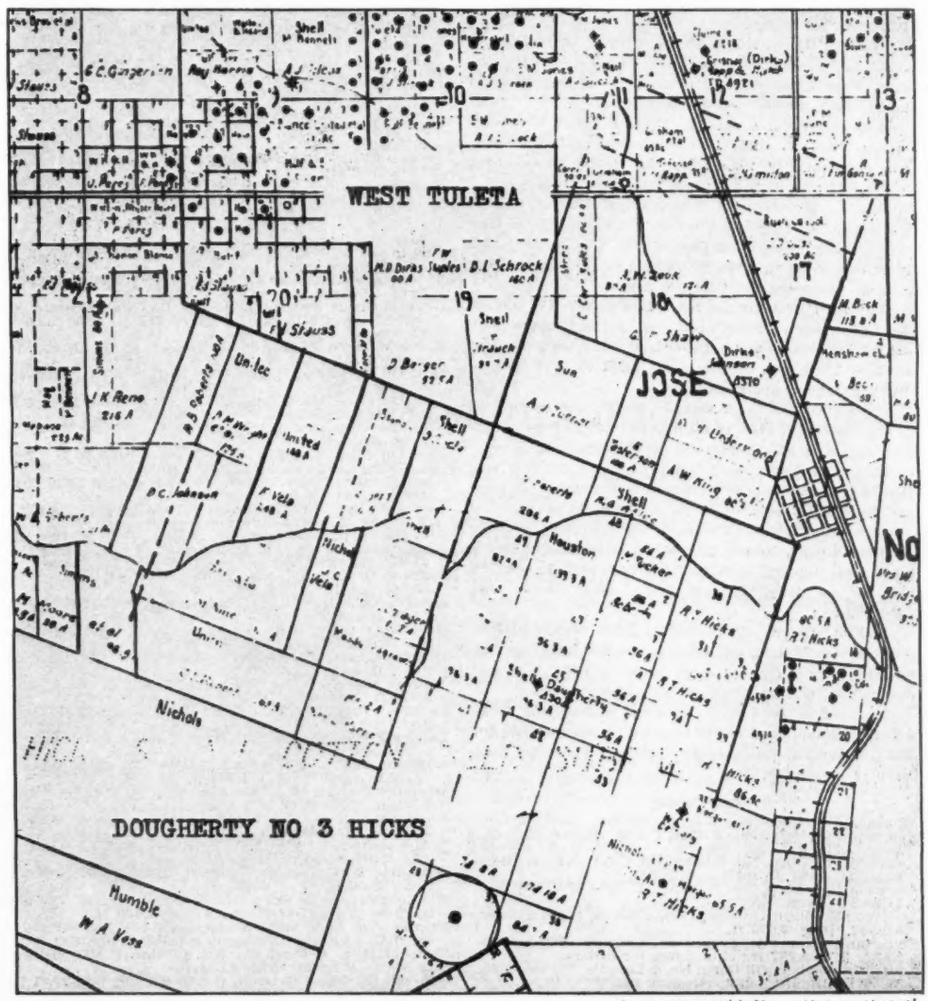
The Luby field of southern Nueces County seems due a mile northward extension, according to good shows in an outpost well. The Seaboard Oil Corp. No. 1 John Luby, on a drill-stem test at 4,346-56 feet, recovered 300 feet of pipe line oil of 49 gravity with a working pressure of 75 pounds. The test was drilled to 5,079 feet and a second drill-stem test was made at 5,069-79 feet, which corresponds to the regular producing sand in the field to the south. On that test 330 feet of pipe line oil was recovered, together with 30 feet of mud, at 185 pounds working pressure. On the 10-minute test, one-quarter inch chokes were used both top and bottom. The sand tested was cored at 5,072-79 feet. Operators are running an electrical survey, after which they expect to set casing for a production test early in the coming week.

In the same field, the Stanolind Oil & Gas Co., drilling west of production, has tested oil in a new sand. The company's No. 3 McCann, located about 2,300 feet west of the No. 2, showed recovery of 130 feet of fluid, of which 75 per cent was oil, on a drill-stem test at 4,303-16 feet. Upon drilling deeper, the second sand was cored at 4,335-47 feet, and a drill-stem test made at 4,326-47 feet showed recovery of 550 feet of oil in 10 minutes at a working pressure of 190 pounds. Operators are carrying the test still deeper and were drilling below 4,378 feet at latest reports.

These two developments in the Luby field increase its importance. The field was discovered several months ago and until recently has had little activity.

To the north and west, also in Nueces County, the

(Continued on Page 103)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Rocky Mountain Area

By
T. R. INGRAM

1,800-BBL. WELL IN HARDY; WYOMING DEEP TESTS FAIL

DENVER, Colo., Oct. 18.—Major interest in New Mexico the past week was centered in the General Crude Oil Co. and Magnolia Petroleum Co. No. 2-C State, SE SW SE section 16-23-36, which flowed 1,800 bbls. of oil naturally in 15 hours, averaging 127 bbls. of oil an hour for the last six hours of the test, with 15,000,000 feet of gas. It found gas from 3,535 to 3,540 feet and had broken oil pays from 3,540 to 3,697 feet, total depth. Location is in the Henry sector of Lea County, northwest of the Cooper pool, in an area heretofore thought capable only of small production. It was not completed.

Amerada Petroleum Corp. No. 2-G State, C NW SW section 18-19-37, which extended the northwest side of the Monument field, topped pay at 4,013 feet and was completed at 4,045 feet, total depth. After acidizing, it flowed at the rate of 18 bbls. of oil an hour.

Eight other wells were completed in Lea County and one in Eddy County.

Gulf Oil Corp. No. 1-C Mattern, C NE SE section 18-21-37, topped pay at 3,724 feet, total depth 3,800 feet, was acidized and flowed 110 bbls. of oil daily, with 1,125,000 feet of gas.

Gulf Oil Corp. No. 2 Stuart, C SE NW section 10-25-37, had pay at 3,385 feet, total depth 3,432 feet, and flowed 409 bbls. of oil naturally through tubing in 24 hours. Gas gauged 597,000 feet.

Homestead Oil & Gas Co. No. 1 Clifford, C SE SW section 12-26-32, wildcat in southwestern Lea County, was abandoned at 4,868 feet, total depth, when sulfur water intruded at the rate of 7 bbls. an hour.

Mack & Stauffer No. 2 Grizzell, C NE NE section 8-22-37, topped pay at 3,628 feet, total depth 3,765 feet, was acidized, flowed at the rate of 4 bbls. of oil an hour, reacidized and flowed 228 bbls. of oil daily through tubing. Gas measured 4,000,000 feet.

Phillips Petroleum Co. No. 1 Lea, C NW NW section 30-17-34, wildcat 5 miles southwest of the Vacuum pool, drilled into water at total depth of 4,952 feet, plugged back to 4,762 feet, acidized but failed to develop production and was abandoned.

Repollo Oil Co. No. 2 Moseley, NE SE SW section 34-24-37, flowed 227 bbls. of oil naturally in 24 hours from pay topped at 3,330 feet, total depth 3,480 feet.

Shasta Oil Corp. No. 1 Woolworth, NE NE NW section 28-24-37, had pay at 3,472 feet, total depth 3,529 feet, and flowed 840 bbls. of oil naturally in 24 hours.

Stanolind Oil & Gas Co. No. 26 Farnsworth, C SE NW section 18-26-37, topped pay at 3,105 feet, total depth 3,146 feet, plugged back to 3,134 feet and flowed 120 bbls. of oil daily through choke. Gas volume was 1,492,000 feet.

In Eddy County, T. D. Collins No. 1 Weiler, C NW NW section 13-24-36, topped pay at 1,958 feet, was bottomed at 1,970 feet, plugged back to 1,965 feet and pumped 20 bbls. of oil and 5 bbls. of water daily.

The map of the Vacuum pool and neighboring areas which was published in the October 14 issue of The Oil and Gas Journal was prepared by the Zingery Oil Map Co. of Fort Worth, Tex.

Lea County

Amerada Pet. Corp. No. 6 Byrd, SE sec. 12-20-36. Loc.
Amerada Pet. Corp. No. 1 Hare, C SW SW sec. 33-21-37. Drlg. 1,110 ft.
Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 2,585 ft.; set 8-in. 2,573 ft.
Amerada Pet. Corp. No. 1 Stuart, C W½ NW NW sec. 14-25-37. Drlg. 745 ft.
Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-27-37. Drlg. 3,575 ft.
Anderson-Prichard Oil Corp. No. 1 Gregory, NW sec. 33-25-37. T.D. 3,237 ft.; shut down for orders.
Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. T.D. 3,466 ft.; shot; cleaning out.
Anderson-Prichard Oil Corp. No. 3 Langlie, NE sec. 8 25-37. Rigging up rotary.
Anderson-Prichard Oil Corp. No. 1-D Langlie, NE sec. 8-25-37. T.D. 3,290 ft.; running casing.
Bradley Oil Co. No. 1 Grizzell, C SW NE sec. 5-22-37. Drlg. 2,700 ft.
Cities Service Oil Co. No. 7-4 Closson, C W¼ SE NE sec. 6-22-36. Drlg. 1,385 ft.
Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,884 ft.; preparing to deepen.
Cities Service Oil Co. No. 1-A Closson, C NE NE sec. 18-22-36. Wildcat loc.
Continental Oil Co. No. 1-B-6 Elliott, C NE SE sec. 6-22-37. R.U.R.
Continental Oil Co. No. 2-B-6 Elliott, C NW SW sec. 6-22-37. M.I.M.
Continental Oil Co. No. 3-B-6 Elliott, C SE SE sec. 6-22-37. Cellar and pits.
Continental Oil Co. No. 1-B-10 Britt, SW sec. 10-20-37. Drlg. 2,690 ft.
Continental Oil Co. No. 6-A-30 Lockhart, NW sec. 30-21-36. T.D. 3,996 ft.; P.B. 3,925 ft.; testing shut-off.
Continental Oil Co. No. 2-B-31 Lockhart, C SE SW sec. 31-21-36. T.D. 3,872 ft.; F. 36 B.O.P.D. after acidizing.
Continental Oil Co. No. 3-B-31 Lockhart, SE sec. 31-21-36. Drlg. 1,405 ft.
Continental Oil Co. No. 6 Lockhart, NE SE NW sec. 30-21-36. T.D. 294 ft.; set 10¾-in. csg. at 286 ft.
Continental Oil Co. No. 1-A Jack, C SW SW sec. 21-24-37. Cellar and pits.
Continental Oil Co. No. 1-B-24 Reed, C SE SW sec. 24-20-36. R.U.R.
Continental Oil Co. No. 3-A-14 Sanderson, NE sec. 14-20-36. T.D. 3,758 ft.; set 5½-in. 3,752 ft.
Continental Oil Co. No. 4-A-14 Sanderson, C NE SE sec. 14-20-36. T.D. 263 ft.; set 10¾-in. csg. at 258 ft.
Continental Oil Co. No. 5-A-14 Sanderson, NE NE NW sec. 14-20-36. Derrick.
Continental Oil Co. No. 3-A-26 State, C SW NE sec. 26-19-36. T.D. 4,004 ft.; preparing to test.
Continental Oil Co. No. 1-A-30 Warren, C SE NW sec. 30-20-38. T.D. 3,860 ft.; shot; F. 52 B.O.P.D.; testing.
Crandall, Osmond & Maxwell et al No. 1 Maxwell Permit, C SE SE sec. 2-11-36. Drlg. 3,775 ft.
Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.
Culbertson & Irwin No. 2-A Humphrey, NE NE NW sec. 3-25-37. Drlg. 3,325 ft.
Culbertson & Irwin No. 3-A Humphrey, NE SW NE sec. 3-25-37. Drlg. 2,535 ft.
Eastland Oil Co. No. 1 Waldrop, C SE SE sec. 1-20-38. M.I.M.
Emperor Oil Co. No. 1 Johns, C SW NW sec. 24-17-32. Drlg. 3,825 ft.
Empire Oil & Ref. Co. and Repollo Oil Co. No. 2 Brunson, NW sec. 3-22-37. T.D. 3,724 ft.; flowing 50 B.O.P.D. while C.O.
Empire Oil & Ref. Co. No. 1-G State, sec. 2-21-36. T.D. 3,900 ft.; shut down.
Empire Oil & Ref. Co. No. 2-B State, C SE SW sec. 2-21-37. Drlg. 3,850 ft.
J. E. Farrell No. 2-C Walden, S SE SW sec. 15-22-37. Drlg. 3,665 ft.
General Crude and Magnolia Pet. Co. No. 2-C State, SE SW SE sec. 16-23-36. T.D. 3,697 ft.; F. 1,800 B.O. in 15 hrs.
Great Western Prod. Co. No. 1 State, C SE SE sec. 16-26-37. Drlg. 2,150 ft.
Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; testing.
Gulf Oil Corp. No. 2 Cole, C NE NE sec. 16-22-37. T.D. 1,141 ft.; shut down.
Gulf Oil Corp. No. 1 Elliott, SW SE SE sec. 15-25-37. Drlg. 3,380 ft.
Gulf Oil Corp. No. 3-C Kutter, NW sec. 18-19-37. T.D. 3,855 ft.; to run casing.
Gulf Oil Corp. No. 1 Telton, C SE SE sec. 28-21-36. T.D. 1,600 ft.; set 7⅝-in. csg. at 1,569 ft.
Gulf Oil Corp. No. 1-B Shipp, C NW SW sec. 8-19-37. T.D. 302 ft.; set 10¾-in. csg. at 284 ft.
Gulf Oil Corp. No. 1-B White, SE sec. 35-20-36. Derrick.
Herschback Oil Co. No. 1 Alexander, C NE SW sec. 5-21-37. Derrick.
Humble O. & R. Co. No. 2 Fopeano, C SE NE sec. 35-20-36. R.U.R.
Humble O. & R. Co. No. 3 Williams, C SW NW sec. 34-24-37. Drlg. 200 ft.
Humble O. & R. Co. No. 1 Fopeano, C SE SW sec. 25-20-36. Drlg. 3,185 ft.
Humble O. & R. Co. No. 2 Saunders, C NW NW sec. 9-22-34. T.D. 3,177 ft.; W.O.C.
Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-27. T.D. 3,029 ft.; testing.
Landreth Prod. Co. No. 1 Grizzell, NE sec. 8-22-37. Drlg. 2,875 ft.
Landreth Prod. Co. No. 2 Grizzell, C SW NE sec. 8-22-37. Cellar and pits.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.
Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,593 ft.; F. 51 B.O. in 1 hour, naturally.
Magnolia Pet. Co. No. 3 State-Bridges, C SW SE sec. 23-17-34. Standardizing.
J. A. Mascho No. 1 Cloyd, C SE SE sec. 20-22-33. Wildcat; T.D. 1,190 ft.; to run casing.
McDonald & Weiner No. 1 Elliott, SE cor. sec. 19-21-37. Drlg. 3,600 ft.
Mid-Continent Pet. Corp. No. 2 Boren, C SE NE sec. 20-22-36. T.D. 1,548 ft.; set 9⅝-in. 1,470 ft.
Murray et al No. 4 State Wallace, NW SW NW sec. 3-21-36. T.D. 3,840 ft.; flowing 40 B.O.P.D. while C.O.
National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,653 ft.
Ohio Oil Co. No. 2 Grizzell, C NW SE sec. 5-22-37. T.D. 3,600 ft.; prep. to drill in.
Ohio Oil Co. No. 1 Hardy, NE NE SE sec. 20-21-37. Drlg. 1,170 ft.
Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 8-19-37. Drlg. 3,535 ft.
Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; cleaning out.
Ohio Oil Co. No. 9 State-McDonald, SW sec. 16-22-36. T.D. 3,856 ft.; to test.
Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.
Plains Prod. Co. No. 1 Stuart, NE SW SW sec. 10-25-37. Drlg. 2,465 ft.
Repollo Oil Co. No. 1 Carter, SW SE NE sec. 8-24-37. Drlg. 3,695 ft.
Repollo Oil Co. No. 1 Cowden, NE cor. sec. 31-23-37. Drlg. 3,180 ft.
Repollo Oil Co. No. 3 Jamison, SW NE NE sec. 21-24-37. T.D. 3,669 ft.; F. 125 B.O.P.D.
Repollo Oil Co. No. 4 Roach, NW NW SW sec. 21-20-37. T.D. 3,875 ft.; P.B. 3,872 ft.; swabbing.
Repollo Oil Co. No. 1 White, SE NE SE sec. 35-20-36. T.D. 3,860 ft.; acidized; F. 572 B.O. in 14 hrs.
Republic Prod. Co. No. 3 Crosby, SE SE SW sec. 28-25-37. T.D. 3,220 ft.; testing.
Republic Prod. Co. No. 1 Davis, SW cor. sec. 34-23-36. T.D. 289 ft.; set 13-in. 287 ft.
Rowan Drlg. Co. No. 1-A Elliott, SW sec. 27-22-37. T.D. 3,665 ft.; flowing est. 100 B.O.P.D.; testing.
Rowan Drlg. Co. No. 1 Elliott B, C NE NW sec. 9-22-37. Drlg. 3,671 ft.
Rowan Drlg. Co. No. 2 Elliott B, C NW NW sec. 9-22-37. T.D. 1,200 ft.; waiting on tools.
Rushwold Oil Co. No. 1 Mattix, NE sec. 10-24-37. Cellar and pits.
Samedan Oil Co. No. 3 Hughes, sec. 4-23-27. T.D. 3,631 ft.
Samedan Oil Co. No. 4 Hughes, C NW SE sec. 10-23-37. Drlg. 340 ft.
Schermerhorn Oil Co. No. 2 Woolworth, sec. 29-24-37 T.D. 3,577 ft.; shot; F. 326 B.O.P.D.
Shell Pet. Corp. No. 3 Black, SE SE SW sec. 21-24-37. Drlg. 3,020 ft.
Shell Pet. Corp. and Devonian Oil Co. No. 3 Christmas, C SW NE sec. 21-22-36. Drlg. 3,110 ft.
Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,777 ft.
Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; testing.
Skelly Oil Co. No. 1 Combest, NW NW SE sec. 27-23-36. Drlg. 450 ft.
Skelly Oil Co. No. 2 Mon-State, C NE SE sec. 13-19-36. Derrick.
Skelly Oil Co. No. 3 E. Sims, C SE SE sec. 2-23-37. Drlg. 3,672 ft.
Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; cleaning out.
Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,622 ft.
Skelly Oil Co. No. 6 R. R. Sims, C SW SW sec. 3-23-37. T.D. 3,630 ft.; F. 100 B.O.P.H. by heads.
Skelly Oil Co. No. 1-E W. P. Sims, C NW NE sec. 10-23-37. T.D. 3,625 ft.; flow. 452 bbls. in 24 hours.
Skelly Oil Co. No. 2 W. P. Sims, C SE NE sec. 10-23-37. Cellar and pits.
Skelly Oil Co. No. 1 State H, C E half SW NW sec. 25-20-36. Drlg. 1,395 ft.
Skelly Oil Co. No. 2 State H, C E half NW NW sec. 25-20-36. T.D. 1,138 ft.; set 9⅝-in. 1,132 ft.
Skelly Oil Co. No. 2 Sticher, C NW SW sec. 4-22-37. Drlg. 2,765 ft.
Stanolind O. & G. Co. No. 8 Gilluly A, C NW SE sec. 24-20-36. T.D. 3,770 ft.; set 7-in. 3,727 ft.
Stanolind O. & G. Co. No. 9-A Gilluly, C NE NW sec. 24-20-36. T.D. 3,768 ft.; to test.
Stanolind O. & G. Co. No. 10-A Gilluly, SE SE NE sec. 24-20-36. Cellar and pits.
Stanolind O. & G. Co. No. 11-A Gilluly, C SW NE sec. 24-20-36. R.U.R.
Stanolind O. & G. Co. No. 12 Gilluly A, C NW NW sec. 24-20-36. Drlg. 2,210 ft.
Stanolind O. & G. Co. No. 1-B O. J. Gilluly, C NW SW sec. 25-20-36. T.D. 2,660 ft.; set 9⅝-in. 2,647 ft.
Stanolind O. & G. Co. No. 2-A Langlie, C NW SW sec. 9-25-37. T.D. 3,214 ft.; S.D. repairs.
Stanolind O. & G. Co. No. 1-A Hill, C NW SE sec. 6-21-37. Location.
Stanolind O. & G. Co. No. 1-B Hill, NE sec. 6-21-37. Drlg. 1,235 ft.
Stanolind O. & G. Co. No. 2-B Langlie, C NW NW sec. 15-25-37. T.D. 3,458 ft.; P.B. 3,147 ft.; shut in.
Stanolind O. & G. Co. No. 2-A Myers, C SW SW sec. 15-24-37. Derrick.
Stanolind O. & G. Co. No. 3 Meyer A, C SW SE sec. 22-24-37. Drlg. 1,020 ft.
Stanolind O. & G. Co. No. 1 State, C SE SE sec. 2-21-36. Drlg. 3,645 ft.
Stanolind O. & G. Co. No. 1 State, C SE SE sec. 12-24-37. T.D. 3,420 ft.; set 5½-in. 3,318 ft.
Stanolind O. & G. Co. No. 1 Thompson, NE sec. 6-21-27. Location.
W. H. Street No. 2 Wood, C SW NE sec. 22-22-37. T.D. 3,692 ft.; fishing.
Sun Oil Co. No. 6 Akens, C NE SE sec. 3-21-36. T.D. 2,588 ft.; fishing.
Texas Co. No. 2 Fristoe, NW NE NE sec. 3-25-37. Rigging up machine.
Texas Co. No. 11-L State, C SW NE sec. 1-18-34. Drlg. 4,040 ft.
Texas Co. No. 2 Talley, C NW NW sec. 8-22-37. M.I.M.
Texas Pacific C. & O. Co. No. 6-A State, Acct. 2, NE sec 7-22-36. Drlg. 3,105 ft.
Two State Oil Co. No. 1 Atha, C SW SW sec. 31-21-36. T.D. 3,798 ft.; set 5½-in. 3,752 ft.
Two States Oil Co. No. 1 Morris, SW SE SE sec. 21-18-38. Derrick.
Williams & Cockburn No. 3 Miller, C SW SW sec. 23-17-32. T.D. 3,880 ft.; preparing to pump.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-27. T.D. 55 ft.; shut down.
Barnett Oil Dev. Co. No. 1 King Permit, C NW SE sec. 23-26-30. Rigged up and shut down.
Fred Brainerd No. 2 Brainerd, sec. 5-18-27. Drlg. 1,818 ft.

Ed Bryant No. 1 Stebbins, C NE SW sec. 19-20-29. Drlg. 920 ft.
Carper Drlg. Co. No. 2 Geissler, SW SE NW sec. 23-17-30. Drlg. 3,057 ft.
Cities Service Oil Co. No. 1 State, CSL SW SE sec. 16-17-30. Drlg. 3,055 ft.
Continental Oil Co. No. 1 Etz, C NW NE sec. 24-16-30. Drlg. 3,594 ft.
Danciger O. & R. Co. No. 3 Turner, SW NE SW sec. 18-17-31. Drlg. 1,490 ft.

COLORADO

Adams County

Oklahoma Oil Co. No. 1 Baxter, C SW sec. 2-3s-66w. Drlg. 4,412 ft.
Glenridge Oil Corp. No. 1 Hills, SE SE SE sec. 27-3s-64w. T.D. 4,345 ft.; R.U. to D.D.

Archuleta County

Prospect Oil Synd. No. 2 Lena M. Garnett, NW SW NE sec. 13-33n-2e. Rdy. to spd.
Cortez Oil Co. No. 1-A Crowley, NW SE NE sec. 2-32n-2e. Drlg. 260 ft.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. Drlg. 560 ft.; set 10-in. at 540 ft. for wtr. S.O.

Grand County

Interstate O. & R. Co. No. 1 Hinman, NE SE NW sec. 11-2n-81w. Drlg. L. 2,200 ft.; carrying 6¼-in.; show wet gas.

Jackson County

Colorado Oil Ref. Co. No. 1 North Park Coal, NW NW sec. 18-9n-78w. T.D. 3,015 ft.; rng. 8¼-in. to 3,000 ft.

Larimer County

Great West O. & G. Corp. No. 1 Haworth, C SW SE sec. 16-4n-69w. T.D. 3,825 ft.; lowering 6⅝-in. to bttm.

LaPlata County

N. Spatter No. 1 Bryce, SE SW SW sec. 31-33n-9w. T.D. 800 ft.; installing new sd. and drlg. lines.

Lincoln County

Consolidated Smelting & Metals Corp. No. 1 Hancock, NE NE SW sec. 7-17s-52w. T.D. 2,860 ft. in r.b.; U.R. 8¼-in. to bttm.
Gulf Oil Corp. No. 1 Smith, C SW SE sec. 19-15s-53w. Drlg. red sh. with some sdy. sh.&L. 4,765 ft.

Pitkin County

Glenco Dev. Co. No. 1 Govt., NW cor. sec. 9-10s-89w. T.D. 1,040 ft.; cleaned up fsg. job; rerng. 10-in.; company has taken over drlg. contract.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW sec. 16-1n-91w. Drlg. 1,600 ft.; top blk. Penn. sh. 1,340 ft.
Texas Co. and California Co. No. 1 Unit, SW SE NW sec. 35-3n-94w. Drlg. 6,080 ft.

WYOMING

Albany County

The Ohio Oil Co. No. 1 D. J. Griffin, C SE SW section 2-21n-77w, a test of the Foote Creek structure, was plugged and abandoned at 2,050 feet when cores showed formation dipping 50 degrees. Rig is being skidded to location for No. 2 D. J. Griffin, an offset on the southwest.

Wyco Oil Co., Inc., No. 2 Chappel, NE NE NW section 33-21n-76w, East Rock River, lost the hole at 858 feet and is skidding rig 250 feet to the northwest for No. 2-X Chappel.

Carbon County

The Ohio Oil Co. No. 1 Union Pacific, SW NW NW section 20-21n-80w, a deep test on the Simpson Ridge dome, was plugged and abandoned at 5,619 feet when cores showed formations dipping steeply. Rig is being skidded half a mile to the northwest for No. 2 Union Pacific.

Fremont County

Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-33n-96w. Drlg. gr. sdy. sh. 2,525 ft.
Sinclair Wyoming Oil Co. No. 2-C Muskrat, NE SW SW sec. 1-33n-92w. T.D. 8,097 ft.; P.B. to 7,555 ft.; S.D. repairs.
Consolidated Oil Properties No. 3, C SW SE sec. 16-1n-1w. Loc. for 2,200-ft. test on Sage Creek; (first report).
H. Kenyon Burch No. 1 Enos, CEL NE NE sec. 28-3n-1w. S.D.O. 970 ft.; no shows.
Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. T.D. 500 ft.; set 8¼-in. at 475 ft.

Hot Springs County

Italo Pet. Corp. No. 1 Phebus-Govt., NW NW SW sec. 11-44n-98w. Drlg. 1,450 ft.
Oscar B. Grace No. 4 Govt., CNL SE NW sec. 21-43n-92w. T.D. 380 ft.; fsg. bailer.

Lincoln County

H. M. Eller et al No. 4 Govt., SE NW SW sec. 32-19n-116w. T.D. 401 ft.; will test S.O. in lenticular sd. at 397-401 ft.
Place Oil Co. No. 1 Davis, SE SE SE sec. 9-26n-11w. T.D. 1,228 ft.; set pipe on top sat. zone at 1,212 ft.; tstg.

Natrona County

Stanolind O. & G. Co. No. 11 Wyo. Asso.-Tensleep, C NE NW sec. 35-40n-79w. T.D. 3,000 ft.; rng. 9⅝-in.
Stanolind O. & G. Co. No. 29 Wyo. Asso.-Tensleep, C SW SW sec. 26-40n-79w. Drlg. sdy. sh. and bentonite 1,805 ft.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. T.D. 1,780 ft.; rmg. to set 16-in.

Niobrara County

The Ohio Oil Co. No. 1 Leo-O.P.C.-7, half a mile east of the same company's No. 5 Leo, the discovery well in the Minnelusa on the east side of the Lance Creek field, is shut down for orders at 5,641 feet after swabbing 7 bbls. of oil and 31 bbls. of water in 24 hours. It apparently marks the limits of the productive area of the Pennsylvanian on that side of the field.

The Continental Oil Co. No. 10 Tom Bell Cattle, which is three-fourths of a mile in from No. 5 Leo, but farther north, swabbed 175 bbls. after acidizing with 4,000 gallons at 5,301 feet after plugging back from 6,256 feet. It is not yet completed, but probably will make a 200- to 300-bbl. well.

The Continental Oil Co. No. 8 Rohiff, an outside well on the northwestern flank, is shut down for orders at 4,025 feet. It bailed 40 bbls. of oil from the Sundance in the last 24 hours of testing and may be deepened to the Minnelusa.

Sublet County

The Texas Co. No. 3-I, SE NW NW section 27-27n-113w, LaBarge field, pumped 85 bbls. the first 14 hours at 980 feet, total depth, and is a completion.

Sweetwater County

The Mountain Fuel Supply Co. is starting an important wildcat in new territory in its No. 1 John W. Hay, Jr., NE SE NW section 2-19n-110w, on the Black Fork structure. The location is 30 miles west of the town of Rock Springs, west of the Green River, near the town of Marston and in the southwestern part of the Bad Lands district.

MONTANA

Big Horn County

E. L. Dana No. 1 Hardy, SW NW sec. 22-9s-35e. T.D. 500 ft. in Claggett; fsg.

Choteau County

Security Pet. Co. No. 1 Johnson, NE sec. 23-26n-3e. S.D. 1,690 ft.; (C.D.).

Carbon County

R. C. Tarrant No. 1-A Heare, CWL NE NW sec. 14-6s-19e. Spdg.
Miracle Oil Co. No. 2, CWL NE SE sec. 3-6s-23e. T.D. 1,495 ft.; C.O.
Ohio Oil Co. No. 16 Kirt, C SE SE sec. 4-7s-21e. Cg. 5,898 ft.; top sd. 5,850 ft.
Geo. Muth et al No. 1, CSL SE SE sec. 23-6s-23e. S.D. indef at 1,500 ft.
Shaw-Wa Pet. Co. No. 1 Govt., SW SW NE sec. 35-9s-23e, Elk Basin field. R.U.
Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW sec.

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Cascade County

C. Leonard Smith No. 1-A Smith-Schwingle, NE NE SW sec. 14-22n-2e. T.D. 750 ft.; fsg. tools.

Daniels County

White Tail O. & G. Co. No. 2 Wiley, NW NW NW sec. 10-36n-50e. Drlg. 1,498 ft.

Fallon County

Johnson-Burke No. 1 Govt., SE NE SE sec. 6-8n-79e. Drlg. 1,200 ft.

Fergus County

Lewistown Oil Co. No. 1 Parks, C NE NE sec. 13-15n-18e. S.D. 350 ft.

Sam Phillips No. 1 Brakke, NW SE SW sec. 14-15n-19e. Spdg.

White Top O. & G. Co. No. 1 Govt., C NE SW sec. 35-14n-19e. Drlg. 810 ft.

Glacier County

One completion for the week was the Montana Headlight Oil Co. No. 9 Yunck, NE SW NW section 1-34n-6w, which was completed at 2,777 feet for 30 bbls. per day naturally from sand at 2,735-68 feet.

W. E. Ulman No. 1 Allotted, C SW section 35-36n-8w, a test on the Chalke Butte structure west of the Cut Bank field, was plugged and abandoned at 4,357 feet. It had sulfur water in the Madison, topped at 4,355 feet. Elevation is 4,016 feet. Other tops were Colorado, 1,655 feet; Cut Bank sand, 4,060 feet; Ellis, 4,140 feet.

Hill County

Nadeau Bros. No. 1 O'Neal, NW NW NW sec. 34-32n-17e. Drlg. 1,300 ft.

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e. Drlg. 1,750 ft.

Lewis and Clark County

The Lewis & Clark Oil Syndicate has made locations for three tests to be drilled on the Coulmoore structure 12 miles southeast of Augusta, of which it is planned to put down two this year. The structure, mapped by Dr. C. C. Coulter, of Denver, is in Townships 17, 18 and 19n, Ranges 4 and 5w, with 80,000 acres in the closing contour. The Colorado shales are exposed at the surface and along the 15-mile long anticline he maps two and possibly three highs.

Lewis & Clark Oil Synd. No. 1 Lewis & Clark, NW NW SW sec. 11-18n-5w. Loc.; to go to 1,900 ft.; (first report).

Lewis & Clark Oil Synd. No. 1 Pathfinder, CNL NW SE sec. 29-18n-4w. Loc.; (first report).

Lewis & Clark Oil Synd. No. 1 Sacajawea, SE NE NE sec. 5-17n-4w. Loc.; prob. not drill this year.

Park County

Ben W. Ryan et al No. 1 Burgess, SE SW NW sec. 28-2s-11e. T.D. 1,000 ft.; mudding off gas.

Roosevelt County

John W. Schmidt et al No. 1 Freu, NW NW NE sec. 21-28n-50w. Drlg. 700 ft.

Toole County

Five wells were completed in the Kevin-Sunburst field, of which two were much better than the average. The G. & A. Oil Co. No. 10 Goeddertz, NE SW SW section 23-35n-3w, on the west side, started off at 150 bbls. per day and settled to 80 bbls. per day on the pump without acidizing. It had the contact at 1,673-74 feet.

M. W. Cassidy No. 1 Mary, CEL NE NW section 5-34n-3w, 2½ miles south of the town of Kevin, pumped 150 bbls. per day after acidizing with 500 gallons from the contact at 1,720 feet, total depth. It had 400 feet of oil in the hole before acidizing. This is in new territory. Some wells drilled in the district before acidization came into general use had only shows of oil and were not produced. This well had 50,000 feet of gas in the Sunburst at 1,435-50 feet.

H. F. Patterson No. 2 Elwell, NE SE NW section 22-35n-3w, pumped 60 bbls. per day after acidizing with 500 gallons from the contact at 1,770-85 feet.

Gray Superior No. 4 Aronow, NW SW SW section 12-35n-3w, pumped 40 bbls. per day from the Sunburst at 1,515-46 feet.

Henry Vander Pas No. 1 Ward, SE SE NE section 28-35n-3w, made 15 bbls. per day on the pump from the contact at 1,738-42 feet after acidizing with 500 gallons. A number of wells have been drilled to the top of the pay and shut down without completing due to seasonal curtailment of market demand. Active drilling wells are down to eight with no new locations.

Outside Kevin-Sunburst

Model Oils, Inc., No. 1 Fey, NE SW sec. 5-37-3w. Drlg. 2,330 ft.; carrying 10-in.

Montana Gas Corp. No. 2 Clark, C SE SW sec. 24-37n-1w. Drlg. 1,410 ft.

Yellowstone County

Riverton Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. S.D. 1,208 ft. for csg.; 2,000,000 ft. of gas 1,207 ft.

Broadview Dome Oil Co. No. 1, NE NE SW sec. 18-3n-23e. Drlg. top Sundance 2,905 ft.; large vol. of gas.

Laurel Oil Co. No. 1, C NW SW sec. 7-2s-24e. S.D. 150 ft.

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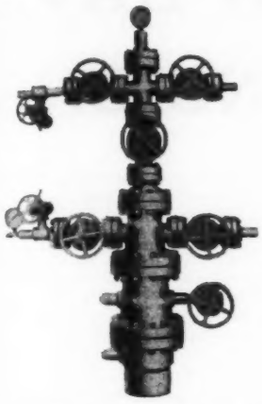

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Among Gulf Coast Drilling Contractors

Contractors along the Gulf Coast were watching with much interest the outcome of two important production tests scheduled to be made on outposts in the Sandy Point and Hardin fields in Brazoria and Liberty counties, both of which were drilled by contractors. At Sandy Point, H. J. DeArman has cemented 7-inch casing at 6,585 feet, preparatory to testing his No. 1 Edmundson, located 6,000 feet west of production in the D. Talley Survey. The hole was drilled to a total depth of 6,610 feet, encountering salt water sand at 6,567-87 feet. A Schlumberger survey showed the top of the sand at approximately 6,464 feet, which was broken, showing oil and gas to 6,565 feet. It may be several days before the well is tested, as the rig is being torn down and moved to the Tomball field for Shell Petroleum Corp. The completion of No. 1 Edmundson as a large oil well would add much to the importance of the Sandy Point field, where several small producers have been completed. The majority of the acreage surrounding the well is controlled by Stanolind Oil & Gas Co., which has all of its holdings drilled by contractors.

Another attractive area in which drilling operations may be increased by the completion of an important outpost test is the Hardin field in Liberty County, where Jack Frazier has cemented casing at Strake Petroleum Co. No. 1 W. T. Finley, located about 6,000 feet southeast and south of production. The hole is bottomed in 18 feet of sand at 7,637 feet. The majority of the acreage here is divided into numerous ownerships that are held by Arkansas Fuel Oil Co., Humble Oil & Refining Co., Gulf Oil Corp., Woodley Petroleum Co., Atlantic Refining Co., Shell Petroleum Corp. and many independents. Recent developments in this field indicate a major field and new operations are being started by Gulf Oil Corp., Jack Frazier and Jameson & Bryan.

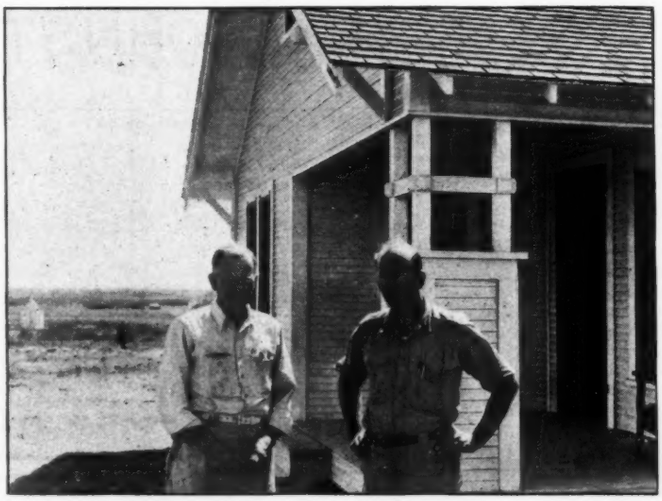
Glenn H. McCarthy has abandoned Atlantic Refining Co. No. 1 Rohls at the Palacios field in Matagorda County and is expected to move to another location. He has another rotary operating in the field for the same company and is drilling below 10,225 feet at Sun Oil Co. No. 1 Bay Shore Farms, Inc., located south of the discovery well. In the Amelia field for himself, Glenn H. McCarthy has reached the sand on two wells and is preparing to make production tests.

T. A. Carlton has reached the sand at the Hitchcock field, Galveston County, and is coring ahead to 6,100 feet before testing. The well is being drilled for the Merit Oil Co. In this same area, N. W. Humter No. 1 Stewart has reached the sand and is shut down waiting orders after running a Schlumberger survey.

R. B. (Cap) Fields is preparing to make a production test at the Cedar Bayou Prospect in Chambers at Merit Oil Co. No. 1 Wright. Bottom at 7,515 feet, 7-inch casing was cemented at 6,602 feet and the well is to be tested through perforated casing. Several encouraging showings have been encountered at various intervals from 6,441-6,500 feet.

There were 33 locations added to the Texas Coast the past week. Nine of the new operations were started in

(Continued on Page 115)



H. F. Blackburn (left), production superintendent for the Argo Oil Corp. and Elvin Tilton, president of the Southern Petroleum Corp., which has several rigs operating throughout Southwest Texas. Picture was taken at a field camp in the North Sweden field in Duval County where an active drilling campaign is under way

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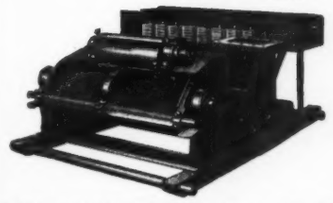

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Texas and Louisiana Gulf

By
F. L. SINGLETON

SANDY POINT, HARDIN HAVE PROSPECTS OF EXTENSIONS

HOUSTON, Tex., Oct. 18.—Prospects of two important extensions being recorded for the Sandy Point and Hardin fields in Brazoria and Liberty counties were the outstanding developments along the Texas Coast the past week while in the Coastal Louisiana sector, a 10,000-foot producing horizon for the Jeanerette field in St. Mary Parish was apparently opened.

With detailed information released on DeArman No. 1 Edmundson, a mile west extension to the Sandy Point field, Brazoria County, is possible. The hole is bottomed at 6,610 feet and 7-inch casing has been cemented at 6,585 feet. A Schlumberger survey showed broken sand showing oil and gas at 6,464-6,565 feet which will be tested through perforated casing. Salt water sand was cored at 6,567-87 feet. The well is in Block 51, D. Talley Survey. The Discorbis was topped at 5,784 feet, Heterostegina at 6,171 feet and the Marginulina at 6,262 feet. Based on the geological markers the well was reported to be checking too low to produce, however the top of the sand is about normal with the other wells in the field.

In the Hardin field, Liberty County, Strake Petroleum Corp. was running 7-inch casing preparatory to testing No. 1 W. T. Finley which is about 6,000 feet southeast of the west extension area and approximately the same distance south of the field proper in the A. B. Hardin Survey. While details of the core record are not available at this time, the well is reported to be bottomed in 18 feet of sand and sandy shale showing oil and gas at 7,637 feet. While the top of the sand section is not known, the bottom of the hole conforms with the other producing wells.

While development around the discovery well following its completion in 1935 proved to be very erratic, recent developments during the past few months has seen the completion of four prolific producers which has extended production over 2 miles to the southwest. The outcome of the Strake test is of most importance due to the fact that it will open several thousand additional acres for development, giving this field a major appearance. In the southwest extension area, Woodley Petroleum Co. is completing No. 3 McMurtry, located 1,000 feet south of production. Oil sand was cored at 7,578-92 feet and the hole is bottomed at 7,600 feet at which point 7-inch casing was cemented.

Busy Hastings Field

There were 12 completions and nine locations reported for the active Hastings field in Brazoria and Galveston counties. The locations were featured by a mile northeast test to be drilled by R. M. Stevens and W. K. Womack on the L. Barnes tract in the W. D. C. Hall Survey, located about 1½ miles northeast of the field.

Operations in the active Heyser field, Calhoun and Victoria counties was the testing of the 5,400-foot sand in the north extension area by Gulf Oil Corp. No. 1 Schultz. The hole is bottomed at 5,483 feet and casing is being run for a production test after a drill stem test showed favorable indications. Finding production from this sand here is unusual since it has shown nothing but gas when tested. The main production in this area is from the 5,700- and 5,500-foot levels. There were two completions and three locations reported. The completions were made by Sinclair Prairie Oil Co. and Humble Oil & Refining Co., while new development was started by Portilla Drilling Co., Blanco Oil Co. and Magnolia Petroleum Co.

In the Cotton Lake field, Chambers County, Texas Crusader Oil Co. No. 9 Kilgore cored oil sand at 6,283 feet and casing is being run after the formation was cored to a total depth of 6,290 feet. Location is in the J. Townsend Survey. Two miles south of the Cotton Lake structure and located in the S. Barrow Survey, Joe Lundin and others have abandoned No. 1 Emily Lawrence at 7,017 feet.

Humble Oil & Refining Co. No. 2 L. Beamer, in the south extension area of the Friendswood field, Harris County, flowed 578 bbls. of pipe line oil per day through a quarter-inch choke with tubing pressure 750 pounds and casing pressure 925 pounds. Production was obtained at a plugged-back depth of 6,070 feet. Drilling operations have started on the same company's No. 3 Beamer, an offset to No. 1 Gray, which is drilling below 3,700 feet.

Shallow Test Fails

Sun Oil Co.'s attempt to open a shallow sand at the Nome field in Jefferson County failed and it is drilling ahead to the regular pay. After coring sand and shale with good oil and gas showings at 5,654-59 feet, casing was cemented for a production test which showed water with a slight trace of salt.

Atlantic Refining Co. No. 1 Rohls, 1,400 feet southwest of the discovery well of the Palacios field, Matagorda County, has been abandoned in heaving shale at 8,843 feet. Offsetting the discovery well to the south, Sun Oil Co. No. 1 Bay Shore Farms is drilling in sandy shale below 10,225 feet with no shows reported past 8,900 feet.

Gulf Oil Corp. No. 8 Wing, a south outpost test to the Segno field, Polk County, continues to hold interest as it cores ahead below 6,457 feet after another 15-minute drill stem test at 6,431-39 feet showed 210 feet of oil and 480 feet of salt water with no pressure. It is 1½ miles south of production in the I.&G.N. Survey and prospects of a deeper pay being opened are bright since it has shown considerable oil on numerous drill stem tests below the discovery pay at 5,100 feet.

In the Hitchcock field, Galveston County, Merit Oil Co. No. 1 Stewart cored sand showing oil and gas with a strong odor of salt water at 5,183-5,204 feet and it is reported the hole will be deepened to 6,100 feet before a test is made. It is approximately a mile northwest of the discovery well in the J. D. Moore Survey. In the same area, N. W. Hunter No. 1 Stewart Title Guaranty is shut down after running a Schlumberger survey which showed sand at 5,238-41 feet. The sand in both tests was encountered from 50 to 60 feet lower than the discovery well.

Merit Oil Co. No. 1 T. & M. Wright, on the Cedar Bayou Prospect, Chambers County, was scheduled to be tested the first of the week. The hole was cored to a total depth of 7,515 feet and 7-inch casing was cemented at 6,602 feet. The test has encountered favorable showings in the Marginulina and Frio sections, the most favorable being at 6,441-56 feet which showed 210 feet of 36.6-gravity oil, several hundred feet of salt water and 25 pounds of pressure. The production test will be made through perforated casing and it is expected to be completed for a distillate well.

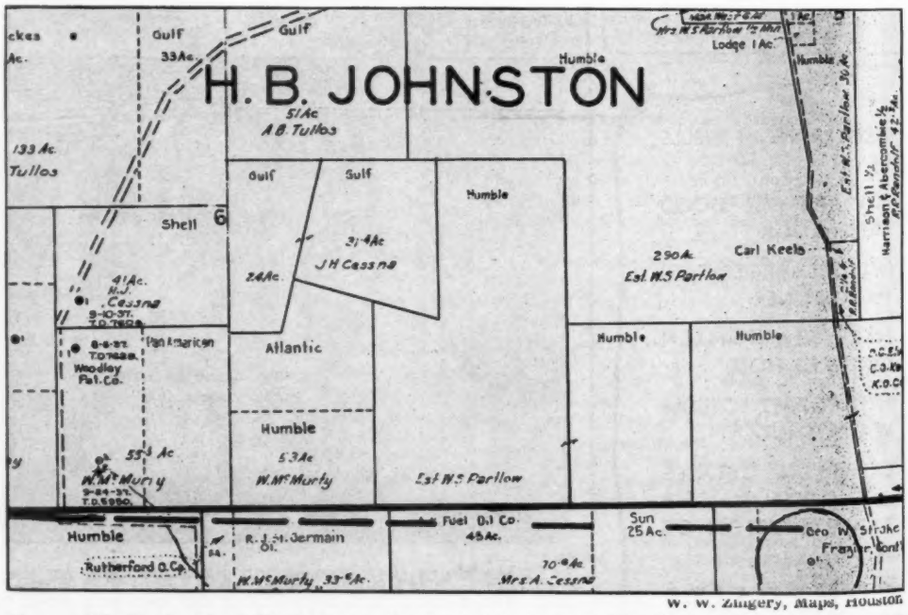
Of the 33 locations made for the Texas Coast the past week, much interest was attached to two locations made by Stanolind Oil & Gas Co. in two outstanding gas reserves. In the Clinton field, No. 1 M. E. Oates has been spotted 400 feet east of the discovery well in the Reels and Trobough Survey while in the Katy area, Waller County, material is scheduled to be moved to No. 1 Security Trust in the H.&T.C. Survey, section 99.

Louisiana Coast

Along the Louisiana Coast another 10,000-foot producing horizon has apparently been opened by the completion of Herton Oil Co. No. 1 Banta-Roanes in the Jeanerette field, St. Mary Parish. Bottomed at a total depth of 10,480 feet, the hole was plugged back and the casing perforated at 10,412-24 feet and it is still cleaning itself, flowing 738 bbls. of fluid per day of which 25 per cent is B.S.&W. and the balance 34-gravity oil. The well is in section 401-13s-9e and opens the fourth production horizon for the field. The other horizons are 6,600 feet, 7,000 feet and 7,400 feet.

Preparations were being made by the Gulf Oil Corp. to test a deep sand at the Lake Hermitage field in Plaquemines Parish where No. 7 Lafourche Basin Levee Board topped sand showing oil at 8,119 feet and

(Continued on Page 103)



W. W. Zingery, Maps, Houston

George W. Strake No. 1 W. T. Finley (indicated by half circle) which is preparing for a production test. Recent developments in the southwest extension of the Hardin field area are also shown

Central West

By STAFF CORRESPONDENT

PIPE LINE OUT OF RICHLAND COUNTY READY FOR SERVICE

MATTOON, Ill., Oct. 18.—The first pipe line out of the deep sand fields in the Illinois Basin, constructed by the Pure Oil Co., and extending from the Noble field in Richland County to the Illinois Pipe Line Co.'s line near Martinsville, Ill., is ready for operation and it has already taken some oil. The line was tested with water recently.

Gulf Oil Corp. is believed to have an oil well in its No. 1 Laughton, in section 29-4n-8e, Clay County. It is shut down with pipe set at 3,031 feet.

In the past week 12 oil wells and four dry holes were completed in the basin fields, the largest oil well having been Ohio Oil Co. No. 4 Arbuthnot in the Noble field in Richland County, which started at 1,026 bbls. per day.

Marion County Completions

Adams Oil & Gas Co. No. 3 Boyd, NE cor. SE SE section 20-4n-1e, Marion County, had sand at 1,410-21 feet, which was shot with 10 quarts, the well responding with an 85-bbl. initial production.

Adams Oil & Gas Co. No. 11 Merryman, NW SW SW section 2-4n-1e, started at 24 bbls. a day on the pump from sand at 1,405-07 feet.

Adams Oil & Gas Co. No. 9-A Wasem, CSL SW NW section 28-4n-1e, was shot with 10 quarts at 1,437-46½ feet and is a 65-bbl. pumper.

Cypress Oil & Gas Co. No. 5 Adams, SW cor. NE SW SW section 28-4n-1e, is a 50-bbl. well at 1,449-55 feet.

Reynolds and others No. 1 Foughett, NW cor. NE SE SW section 28-4n-1e, had sand at 1,438-57 feet and is a 55-bbl. well on the pump.

J. I. Staley No. 1 Ballentine, NE cor. SW SW section 28-4n-1e, was good for 47 bbls. initially producing from sand at 1,449-53½ feet.

Adams Oil & Gas Co. No. 1 C. Adams, NE NE SW section 29-4n-1e, had Benoist sand at 1,433-43 feet, but drilled to 1,590 feet, topping St. Genevieve lime at 1,558 feet. It tested the Benoist and got 20 bbls. of fluid, half oil and half water.

Clay County Completions

In Clay County, Leonard Brothers No. 1 Logan, SE SW NW section 2-3n-6e, a wildcat was dry and abandoned. It had Weiler sand at 2,638 feet and topped the Oolitic lime series at 2,973 feet, total depth 3,112 feet.

Pure Oil Co. No. 1 Schrugham, SW SW NW section 9-2n-8e, found Cypress sand at 2,652-65 feet with saturation at 2,657-63 feet. St. Genevieve lime was topped at 2,928 feet, and the hole was drilled to 3,182 feet, where it was abandoned as dry.

Pure Oil Co. No. 2 Staley, SW NW SW section 9-2n-8e, made a 151-bbl. pumper. It had Weiler sand at 2,655-87 feet and Oolitic pay at 2,995-98 feet, 3,009-12 feet and 3,019-22 feet, the total depth. It was not shot or acidized.

Mammoth Producing & Refining Co. No. 1 Bemis, SE SW SE section 9-3n-8e, was dry and abandoned at 3,168 feet. Weiler sand was topped at 2,691 feet, Bethel at 2,945 feet, St. Genevieve at 2,996 feet. A stain of oil was the best this test got.

Pure Oil Co. No. 3 Bechtel, SE SE NW section 33-3n-8e, flowed 425 bbls. the first 24 hours after a 100-gallon acid treatment. Weiler sand was found at 2,614-26 feet. It showed saturation. The pay was found at 2,947-49 feet, and 2,969-77 feet, total depth 2,990.

Pure Oil Co. No. 2 C. Wilkins, SE SE SW section section 28-3n-8e, flowed 443 bbls. naturally the first 24 hours from pay at 2,963-71 feet, total depth 2,998 feet.

Richland County

In Richland County, Ohio Oil Co. completed a 1,026-bbl. well in No. 4 Arbuthnot, NE NE NW section 8-3n-9e Noble pool. Roseclaire sand lay at 2,940-53 feet and pay at 2,953-63 feet. It flowed naturally.

Pure Oil Co. No. 1 Wilson, SE SE NE section 33-4n-9e, had Cypress sand at 2,663 feet and pay at 3,004-14 feet, total depth 3,030 feet. It flowed 135 bbls. the first six hours and later made a natural flow of 437 bbls. in 24 hours.

In Jasper County, Diamond Halff Oil Co. drilled a failure in No. 1 Isley, C NW NW section 24-8n-8e. Glen Dean limestone (upper Mississippian series) was topped at 2,343 feet; Cypress sand at 2,570 feet; St. Genevieve limestone (lower Mississippian) at 2,808 feet; total depth 3,504 feet. It was dry all the way.

Clay County Drilling

There are about 30 drilling operations in Clay County. J. C. Shaffer and others No. 1 Leibke, SE SE SW section 17-3n-7e, had St. Genevieve lime at 2,950 feet and McCloskey sand at 2,988 feet, total depth. Southern Illinois Oil Co. and others No. 1 Nodacker, NW SE SW section 23-3n-7e, was drilling at 1,554 feet. Gordon Oil Co. No. 2 Land Bank, SE NE SE section 8-2n-8e, total depth 3,038 feet, was acidized with 500 gallons, topped by a hole full of oil. Later it flowed 60 bbls. of oil in four hours, and then quit. It will be tested on the pump. Same company's No. 3 Land Bank, C SW NE SE section 8-2n-8e (corrected location) was being rigged up. Graham and others No. 1 Carroll, NE SE NE section 8-2n-8e, set 7-inch casing at 2,975 feet after penetrating a good pay formation at 2,980-84 feet. Same operators No. 2 Carroll, SE SE NE section 8-2n-8, found pay at 2,996-3,000 feet, total depth 3,003 feet, and set casing at 2,988 feet. Graham and others No. 3 Land Bank, NW SE NE section 8-2n-8e, found pay at 2,980-3,033 feet. A drill stem test showed 1,410 feet of oil and the well cleaned itself. Seven-inch pipe was set at 2,980 feet. Plug will be drilled and the well tubed. Pure Oil Co. was drilled at 2,485 feet in No. 2 Bressenden, SW NE NE section 8-2n-8e, and was drilling at 1,264 feet in No. 1 Hubble, NE SE SE section 8-2n-8e.

Southern Illinois Petroleum Co. had rig up for No. 1 Duff and others, SE NW NE section 7-2n-8e. Elmer Hupp and others No. 1 Bemis, SE SE NW section 14-3n-8e, total depth of 3,017 feet, pumped 70 bbls. of oil in seven hours and exhausted itself. However, it is estimated as a 175-bbl. pumper. M. O. K. Corp. has rig up for No. 2 Bemis, SW SE NW section 14-3n-8e. J. V. Wicklund No. 1 McCauley, SW SW SE section 23-3n-8e, total depth 2,999 feet, pumped all salt water and may be reacidized. J. V. Wicklund has rig up for No. 2 McCauley, NW SE SE section 27-3n-8e.

Pure Oil Co. No. 3 Chaffin, NW SW SW section 27-3n-8e, had pay at 2,981-83 feet and 2,984-87½ feet, total depth 2,998 feet, and was being swabbed. Same company's No. 4 Chaffin, NE NW SW section 27, was drilling at 1,417 feet and rig was up for No. 5 Chaffin, SE NW SW section 27-2n-8e. Pure Oil Co. 11 Poppe, SE SW NW section 27-3n-8e, had saturated Weiler sand at 2,621-31 feet, and was drilling at 2,885 feet same company's No. 12 Poppe, NE SW NW section 27-2n-8e, found pay at 2,965-73 feet, total depth of 2,997 feet. Pure Oil Co. had rig corners in for No. 1 B. W. Moseley A, SE SE NW section 28-3n-8e. Pure Oil Co. No. 2 Wilkins, NE SE SE section 28-3n-8e, found pay at 2,970-78 feet and 2,979-80½ feet. It swabbed 21 bbls. of oil in three hours. The crew was testing.

Wiser Oil Co. No. 7 Smith, NE NE NE section 28-3n-8e, total depth 3,020 feet, with 7-inch casing set at 2,921 feet, pumped all salt water. Same company's No. 9 Smith, NW SE NE section 28-3n-8e, total depth 3,051 feet with 7-inch casing set at 2,853 feet and 2½-inch tubing run to 2,869 feet, swabbed 54 bbls. of oil in 24 hours. It will be acidized.

Pure Oil Co. was shut down at 3,025 feet in No. 1 L. Moseley, SW NE NE section 33-3n-8e, and No. 2 Moseley, NW NE NE section 22-3n-8e, set 10-inch casing at 215 feet, and was drilling at 332 feet. Pure Oil Co. No. 2 L. Moseley, SW SE NE section 33-3n-8e, total depth 3,004 feet, swabbed 68 bbls. of oil in 24 hours and will be put to pumping. Pure Oil Co. No. 2 A. Travis, NE NE NW section 33-3n-8e, found pay at 2,971-74 feet, total depth 2,988 feet; set 7-inch casing at 2,938 feet. It swabbed 11 hours and was flowing into pits. No estimate was made as to its worth.

Pure Oil Co. No. 6 B. Travis, NW NW NE section 33-3n-8e, flowed 96 bbls. in six hours from pay at 2,955-62 feet and 2,967-77 feet, total depth 2,990 feet. Same company's No. 1 E. Weiler, SE SW SE section 33-3n-8e, an old well was plugged back from 2,615 feet and then redrilled and pipe set at 2,940 feet. It will be tested on the pump. This was the discovery well in the Clay City field. It was a 40-bbl. initial producer from Cypress sand at 2,607-13 feet. It was completed early in April. On May 18 Pure completed the first big well in the field, No. 1 B. Travis, SW SW NE section 33-3n-8e, in McCloskey sand at 2,950-60 feet. Its initial production was 2,642 bbls. flowing through a 1½-inch choke.

On the Indiana Side

On the Indiana side of the basin, Worthington Oil Co. was drilling at 940 feet in No. 1 Green, NE NE NE section 26-8n-6w, Greene County. A. B. Burnsten was drilling at 265 feet in No. 1 R. Dobb, SW SE NE section 7-8n-8w, Sullivan County. Yon & Pearson were shut down at 1,050 feet in No. 1 Hullman, NW SE SE section 7-11n-9w, Vigo County. Mississippi lime was topped at 805 feet. In the same county, Carter Oil Co. had saturated sand at 2,150-60 feet and was at a total depth of 2,168 feet in No. 1 R. L. Drake, C S half SW NW section 15-10n-10w. It was acidized with 1,000 gallons and swabbed 87 bbls. of oil in 18 hours. Carter Oil Co. No. 1 Roy, C S half SE NE section 16-10n-10w, set 8-inch casing at 130 feet, and was drilling at 1,255 feet.

Illinois Drilling

In Clinton County, Illinois, Cotton and others were building rig for No. 1 Hester, SE cor. NE NW SW section 26-3n-1w. Santa Fe Oil Co. No. 1 Shipman, C S half SE SE section 4-11n-2w, was underreaming 6-inch casing to 1,400 feet. W. C. McBride, Inc., No. 1 Koumerous, C W half SE SE section 27-2n-3w (corrected location) had sand at 1,250-77 feet, and a hole full of water. It was drilling at 1,280 feet. The 6-inch casing will be underreamed.

In Christian County, Parshall & Graham No. 1 Yockey, SW SW NE section 36-15n-2w, had saturated core at 1,944-51 feet, and hard lime at 1,951-54 feet, and was drilled to 2,046 feet. The crew was running 7-inch casing. Sigel & Schlossberg No. 3 C. W. Glass, CNL NW SW section 29-12n-2w, was at a total depth of 1,052 feet. The 4-inch casing was being pulled and 6-inch casing will be run.

In Bond County, Huber Corp., in SE NW NW section 11-6n-5w, set 8-inch pipe at 1,950 feet, and was drilling at 2,250 feet. Whitehead & Morey were drilling at 2,511 feet in No. 1 Pollard, NW SE SW section 26-6n-2w.

In Fayette County, Universal Well Service Co. No. 1 County farm, SE NW SE section 36-7n-1w, was drilling at 1,409 feet. Carter Oil Co. No. 1 Mary Miller, C W half NW NW section 12-8n-3e, was drilling at 2,475 feet in shale. Sulfur water appeared in a core taken at 1,838-48 feet. Schroeder and others No. 1 Lilly, SE SW SE section 16-8n-3e, was at a total depth of 1,030 feet, and the crew was running 8-inch casing.

In Washington County, Lambert & Giffert No. 1 Lessman, NW NW NW section 36-1n-2w, found water at 1,420-1,552 feet, and was shut down at 2,565 feet.

In Jefferson County, Sigel & Schlossberg No. 1, NE cor. SE section 15-1s-1e, was shut down at 205 feet. L. A. Painter and others No. 1, C NW SE section 8-2s-2e, was spudded to 30 feet. It is reported this operation will be taken over by Sturbois & Tomberlin.

In Marion County, Helmerich & Payne No. 1 Spence,

NE NE NE section 25-3n-2e, was at a total depth of 2,183 feet, with nothing showing.

In Massac County, Kahle and others No. 10 Harvick, SW SW SW section 23-14s-3e, was straightening hole at 1,872 feet, after having drilled to 2,835 feet.

In Franklin County, Washburn Petroleum Co. was rigging up rotary for No. 1 C. H. Neal, C W half SE SE section 6-5s-4e.

In Effingham County, Kingwood Oil Co. was drilling at 2,195 feet in sandy shale in No. 1 Bartel, C W half NW NE section 26-6n-5e.

In Wayne County, Washburn Petroleum Co. No. 1 Acola, NW NE NW section 31-2s-6e, was drilling at 2,875 feet. Benedum & Trees, Inc., No. 1 Knapp, SE NW SW section 33-2n-7e, was at a total depth of 3,145 feet, with no showing. Fitzpatrick & Myers No. 1 Shannon, SW NW SE section 26-2n-8e, total depth 3,067 feet, was pumped for 14 days and produced 700 bbls. of oil and an undetermined but large quantity of salt water. Duncan Brothers No. 1 Riggs, SE cor. NW NW SE section 27-2n-8e, was drilling at 1,212 feet.

In Hamilton County, J. Garfield Buel and others No. 1 Dickey, SE SE NW section 22-3s-7e, was ready to spud.

In Jasper County, W. R. Anderson No. 1 Hetzger, C E half NE SE section 10-7n-8e, was drilling at 1,700 feet with 12½-inch casing set at 180 feet. C. R. Obermyer had rotary rigged up in C NW NE section 3-6n-9e (corrected location).

In Edwards County, Leach Brothers No. 1 Lee, SW NW SE section 11-1s-10e, was drilling at 2,468 feet.

OHIO

FINDLAY, Ohio, Oct. 18.—The completions for central and northeastern Ohio are as follows:

In Coshocton County, Perry Township, section 14, Hulse & Kuntz completed No. 5 R. L. McKee in the Clinton sand. It made 60 bbls. the first 24 hours after a shot. Sand was at 3,142-87 feet. In Pike Township of the same county, section 12, Pure Oil Co. completed No. 14 George Crawford in Clinton sand. It made 75 bbls. the first 24 hours after shot. The sand was found at 3,101-45 feet.

In Licking County, Licking Township, section 1, Wehrle Gas Co. No. 2 William Clemm, reported as dry last week, was drilled deeper to 1,412 feet. It made 110,000 feet of gas at 1,385 feet, in the Cinnamon shale.

In Stark County, Perry Township, section 23, White and others completed No. 2 James M. Snyder as a dry hole in Clinton sand at 4,472-98 feet, total depth 4,515 feet.

In Ashland County, Lake Township, section 8, Robison and others drilled No. 1 Albert Krebs through the Berea for a small gas well. Sand was found at 688-95 feet.

In Holmes County, Mechanic Township, section 13, Bell Brothers completed a dry hole in the Berea on the Zella Logsdon farm. Sand was at 908-13 feet.

In Guernsey County, Monroe Township, section 23, George Kernodle No. 1 Mattie Booth had a show of gas in the Berea sand. Water drowned it out. First Berea was at 1,143-93 feet, and the Second Berea at 1,195-1,203 feet. In Jefferson Township, section 6, George Jewell completed No. 2 Charles Gobson as a gas well in the Berea sand. It gauged 390,000 feet from 1,272-83 feet. In Millwood Township, section 10, M. J. Purdy drilled No. 1 Iva V. Griest through the Berea at 1,707-17 feet, for a gas well gauging 100,000 feet.

In Muskingum County, Adams Township, section 13, Wittmer Co. No. 1 Mary Rohrig had a show of oil in the Clinton sand. It was shot and made 26 bbls. the first 72 hours. Sand was from 4,118-69 feet.

In Belmont County, Somerset Township, section 2, Peters and others completed the No. 2 James Skinner as a gas well in the Keener sand. It gauged 1,900,000 feet.

In Perry County, Clayton Township, section 28, Kenova Oil & Gas Co. No. 1 A. M. Miller made a Berea oil well good for 4 bbls. This hole was dry in the Clinton and was plugged back to the Berea.

In Hocking County, Ward Township, section 13, Kachelmacher Estate No. 6 Nelsonville Coal & Land Co. was a dry hole in the Berea sand, topped at 912 feet.

In Meigs County, Salisbury Township, section 33, Ohio Fuel Gas Co. completed No. 1 Ray Michael as a gas well in the Salt sand and Maxon sand. It gauged 791,000 feet naturally, with a rock pressure of 260 pounds. The Salt sand was found from 772-806 feet and the Maxon from 891-921 feet. In the same township, section 32, Peoples and others completed No. 2 Paul Bailey for a dry hole in the Maxon and Keener sands. The Maxon was at 868-910 feet and the Keener at 915-30 feet. Total depth was 930 feet. The Keener sand carried a heavy flow of water. In Rutland Township, Wilford and others completed No. 1 H. M. Wilford tract for a gas well in the Salt sand. It gauged 500,000 feet naturally, with a rock pressure of 115 pounds. The Salt sand was found from 645-80 feet.

In Athens County, Athens Township, section 31, the Gibbs Oil & Gas Co. had a show of oil in the Berea sand on the No. 2 John S. Gibbs. It was shot, but with no increase. The hole was plugged and abandoned.

WESTERN KENTUCKY

OWENSBORO, Ky., Oct. 18.—The first of the deep tests promised the Western Kentucky area this year is not showing favorably in the Mississippi lime. South Penn Oil Co. No. 1 Mrs. Rena Brown, in the Island district, McLean County, got the first break in the Mississippi lime at 2,038 feet but found only water. The second break was topped at 2,082 feet, and at 2 feet in it showed some oil but the hole filled with water. Drilling will continue.

Twenty-three wells were completed in the past week, eight of which were oil wells; four gas wells and 11 dry holes.

Hume, Steele and others are rigging up to drill an important wildcat test to the Bethel sand, in McLean County, 2 miles west of the South Penn Oil Co.'s Kirtley well.

The record of the week's completions and newly started operations by county and district is as follows:

Hancock County

Pellville district: Frank Damron and others No. 3 John T. Newton, 25,000 feet of gas, Jackson sand, 557-75 feet, plugged; No. 4 Ellen House, dry hole at 435 feet; No. 2 Hefner heirs, dry hole, 407 feet. C. D. Walker and others No. 1 Elmer Boling, drilling at 300 feet. Jay Petroleum Co. No. 3 William McIntosh, drilling deeper to Bethel sand. White, Vickers and others No. 5 Mrs. M. O. Brown, dry hole through Jett sand, total depth 590 feet.

Goering district: Cumberland Petroleum Co. No. 3 Tilden Brown, drilling at 200 feet. Frank Damron and others No. 2 Homer Rice, drilling at 200 feet.

Indian Lake district: Galey & Fletcher No. 1 J. W. Holder, deep test, shut down at 1,508 feet.

Ohio County

Narrows district: Nollem Oil & Gas Co. and others No. 1 C. C. Parks, dry hole, Barlow sand at 574-77 feet, Bethel sand at 620-23 feet; No. 2 Homer Robinson, drilling at 275 feet. Whitehouse Oil & Gas Co. No. 2 Joe Shultz, dry hole, Jackson sand 509-40 feet, Barlow sand 562-82 feet. Staves Drilling Co. and others No. 4 M. E. Powers, drilling at 435 feet. Lykins & DeHart No. 1 Rollie Smith, rigging up.

Olaton district: Cox, Lang and others No. 2 Mrs. Abbie Calloway, drilling at 265 feet.

Lyonia district: J. C. Miller No. 3 Bowels farm, drilling at 635 feet.

Friendship Church district: A. D. Noe and others No. 5 A. S. Crawley, spudding in. A. Teller and others No. 5 Estill Board, 15 bbls. a day, Barlow sand at 653-66 feet.

Ralph district: Snowden & McSweeney No. 23 J. J. Midkiff, 5 bbls. a day from Jett sand.

Adaburg district: B. & B. Oil Co. No. 2 Ben Midkiff, 15 bbls. a day, total depth 767 feet.

Westerfield district: Mrs. Rawlings No. 4 Wilbur King, dry hole at 705 feet, abandoned.

Dundee district: Henry Scholl No. 3 J. S. Babbitt, 5 bbls. a day from Jackson sand. Lykins & DeHart No. 12 H. J. O'Dell heirs, rigging up.

Heflin district: Marhill Oil Co. and Vickers No. 1 Montgomery Bros., estimated 500,000 feet of gas, Jones sand 1,121-40 feet.

McLean County

Livermore district: Clark & Snyder No. 5 E. Humphrey, dry hole through Bethel sand, total depth 1,360 feet. W. E. Hupp No. 29 Hackett Bros., drilling at 525 feet; No. 30, drilling at 400 feet and No. 31 drilling at 140 feet.

Island district: South Penn Oil Co. No. 1 Mrs. Rena Brown, deep test; first break in Mississippi lime at 2,038 feet, water; second break in Mississippi lime at 2,082-84 feet, an oil showing with a hole full of water.

Worthington Chapel district: Hume, Steele and others No. 1 G. S. Ward, rigging up and going to the Bethel sand.

Knobs district: Cumberland Petroleum Co. and Snowden & McSweeney No. 8 Elmer Nall, 1,000,000 feet of gas at 750 feet and a hole full of water; gas not saved; drilling at 800 feet.

Daviess County

Haynes district: Rex-Pyramid Oil Co. No. 3 Rolla Cooper, 840,000 feet of gas, 188 pounds rock pressure, Jones sand 602-12 feet.

Hewlett's Store district: Gibson & Auknay No. 2 Ira Bryant, Jackson sand 934-41 feet, show of oil and gas, shot with 30 quarts; Barlow sand 1,016-38 feet, show of oil; total depth 1,065 feet; dry in the top of the Bethel sand; plugged and abandoned.

Cane Run School district: Ashby & Ellis No. 8 Myrtle Howard, 10 bbl. well in Jett sand.

Dermont district: Blair and others No. 1 L. S. Sizemore, water in Jett sand, total depth 1,350 feet.

Utica district: Daugherty & Ellis No. 3 C. W. Howard, 15 bbls., Jett sand 1,080-93 feet.

Breckenridge County

Van Zant district: J. C. Ellis No. 2 F. F. Dean, dry hole in Bethel sand. Kentucky Natural Gas Co. No. 3 W. J. Robinson, 431,000-foot gas well with 126 pounds rock pressure, Bethel sand 539-51 feet; No. 4 Robinson, rigging up; No. 3 Mac H. Dowell, 521,000 feet of gas per day from Bethel sand 555-60 feet; No. 4 Mac H. Dowell, drilling at 200 feet. Snowden & McSweeney No. 1 Russell Morgan, location.

Falls of Rough district: A. V. Smith and others No. 1 Albert Huff, 75,000 feet of gas but with water in the bottom of the Bethel sand, 321-56 feet, plugged. A. V. Smith and others No. 4 Greene Bros., spudding in.

Henderson County

Niagara district: Ranger Oil Co. No. 19 C. M. Gish, 15 bbls., Niagara sand. Mecca Oil Co. No. 1 Mrs. Laura Robards, 4 bbls., Niagara sand.

Caldwell County

Farmersville district: Hall & Booth No. 1 Tom Franklin, small oil showing in Jett sand 650-80 feet, oil showing and water in Jackson sand 705-50 feet, drilling at 900 feet.

EASTERN KENTUCKY

ASHLAND, Ky., Oct. 18.—Two gas wells and four oil well completions are included in the field reports from eastern Kentucky counties. Two of the oil wells are among the best producers of the past few months, located on the Andrew Combs farm on Billies Fork in the Big Sinking district in Lee County. McCoun & Wissing completed No. 5 Combs, pumping 100 bbls. of oil per day. O. E. Townsend, agent, completed No. 10 on the same farm and it had a recorded production of 150 bbls. of oil the first 24 hours.

Mrs. Agatha Wireman No. 20 on the J. M. Townsend farm in the South Fork district of Powell County shows an initial production of 10 bbls. of oil. Petroleum Exploration reports the completion of No. 11 on the Lillie Belle Watson farm in the same district, a 3-bbl. well.

The Kentucky-West Virginia Gas Co. has reported the completion of two gas wells, one in Knott County and the other in Floyd County. The first, in Knott, is No. 5228, on the Nancy Johnson land, on Caney Fork. It was completed at 3,232 feet in White Slate, and has a daily flow of 428,000 feet of gas.

The other well is No. 5229, on the John M. Woods farm, on Porter Branch in Floyd County. It was completed at 1,007 feet, in sand, and has a daily flow of 634,000 feet of gas.

There are several new locations reported this week and other wells are nearing the completion point. The reports, by counties, are as follows:

Knott County

The Inland Gas Corp. was drilling below 2,176 feet in No. 2 on the E. A. Hammonds farm, on the Right Fork of Troublesome Creek, with the bit in slate and shells. The same firm is down 192 feet, in slate and shells, in No. 3 on the R. C. Kilgore land in the same vicinity, and is drilling at the 895-foot level in well No. 1 on the Mayo Craft land nearby.

The Inland Gas Corp. is building rig at well No. 1 on the Whittaker and Waddle land on the Right Fork of Troublesome Creek.

Floyd County

Kentucky-West Virginia Gas Co. was spudding No. 557 on the Ingram Stepp land on Johns Creek in Floyd County. The same firm has road complete to

(Continued on Page 104)

West and North Texas

EXTENSIONS FEATURE WORK IN PERMIAN BASIN DISTRICT

By L. E. BREDBERG

FORT WORTH, Tex., Oct. 18.—One pool in one of the northern tier of West Texas counties was connected this week by the Humble Pipe Line Co., bringing encouragement to operators and producers in that sector of the Permian Basin, which has been in need of a pipe line outlet since the discovery of the Bennett field in southeastern Yoakum County over two years ago.

Since that discovery, a pool in southeastern Cochran County, one in southwestern Hockley and two in Gaines, and two more in Yoakum have been discovered.

The Humble's line is a 27-mile 6-inch coming from the Hobbs field in southeastern New Mexico. It is now running oil from the Wasson field in northern Gaines County, and will be extended to tie into the southeastern Yoakum County field, about 11 miles farther to the northeast, also tying into the new Denver pool and probably the Bohago field north of the Wasson field, but in Yoakum County, 6 and 12 miles distant, respectively. The Texas-New Mexico Pipe Line Co. has been considering laying a line from the Hobbs field to the southwestern Hockley County field, for the Texas Co., which opened this field. The Humble line to the Hobbs field connects with a main line leading from that field to its refinery and tanker-loading docks at Baytown, thereby giving these new fields a direct outlet to the Gulf Coast.

Extension to Seminole Field

The Ohio Oil Co. No. 1 Averitt, in section 228, Block G, W.T.R.R. Survey, quarter of a mile west of production in the Seminole field in Gaines County, has come through as a producer after first showing as a probable failure. Last report credits it with making 5 bbls. of oil per hour, with 4,000,000 feet of gas following a second 5,000-gallon dose of acid and deepening 5 feet while drilling up swab rubbers. Total depth is now 5,067 feet. The flow was made through a 1-inch choke on 2½-inch tubing, consequently the potential of the well will not be known until it is given a Railroad Commission test.

Goldsmith Field

The Goldsmith field in western Ector County was both extended and defined this week. The Rogers and Rogers No. 1-B Texas Pacific Land & Trust, located in section 1, Block 45, Township 1s, T.&P. Survey, with bottom of the hole at 4,289 feet, was given a 180-quart shot at 4,110-4,283 feet, and started heading. It was then shut in and was to be tested for a potential rating. It extends the field a mile to the west.

At the same time the Shasta Oil Co. No. 1 K. Sands, located in section 32, Block 44, Township 1s, T.&P. Survey, 2 miles southwest of the Goldsmith field, was being abandoned at a total depth of 4,521 feet. Elevation is 3,184 feet. The test had good showings of oil but failed to come through commercially.

The Foster, or Odessa, pool's 1-mile southern extension, Mid-Continent Petroleum Corp. No. 1 Wanda Hinkle, located in the NW cor. section 29, Block 42, Township 2s, T.&P. Survey, pumped 465 bbls. of oil on a potential test. Total depth is 4,319 feet. Before completion it was given a 400-quart shot. This pool is about 3 miles west of Odessa in eastern Ector County.

The Harper field, in the south central part of Ector County, which has lately been experiencing an increase in drilling activities, and in which recent completions have extended the field to cover at least four more sections for production, is to receive plenty of water for carrying on drilling operations. Harry Watson and York & Harper are now preparing to construct approximately 5 miles of 6-inch line from water wells on the Elliott Cowden ranch to the pool. Other wells will be drilled as needed to meet the demand for drilling water.

Salt Water in Rotan

The Rotan field, located 2½ miles northeast of Rotan, in northwestern Fisher County, is apparently defined on the south as a result of the British American Oil Co. No. 1 White, located in the NW quarter of section 123, Block 2, H.&T.C. Survey, starting to fill with salt water, struck at 3,602 feet. Eight-inch pipe has been set at 3,587 feet, and it is drilling deeper, the first test in the field to find the brine in the Robinson pay. It is located one-half mile south of production. Elevation is 1,991 feet. Operators and geologists in the field believe the field will run to the north, and this test will strengthen that belief.

Shallow Discovery Pumper

The shallow discovery in the Avoca field, 3 miles northeast of Avoca in northeastern Jones County, has been completed as a pumper, making 425 bbls. per day from the Saddle Creek lime, logged at 1,583 to 1,587 feet. It was acidized. This is the first shallow producer in the field. It is located about one-quarter of a mile north of the discovery well, which is producing from the Canyon lime. The shallow well is owned by the Iron Montain Oil Co. and is its No. 2 Jones and Stasney in section 196, B.B.B.&C. Survey, same section and survey as the deeper discovery. A southeast offset to the deep discovery well failed to find this shallow pay.

Fisher Wildcat

Inland Oil & Refining Co. and C. W. Harkrider have let contract for a 3,600-foot wildcat on a block of 5,300 acres near the town of Longworth, and about 15 miles south of the Rotan field in western Fisher County. The Magnolia Petroleum Co. has taken a spread of 1,500 acres in the block. Another block reported taken in that part of the county comprises 4,800 acres lying between the Rotan and Royston fields. L. C. Harrison of Dallas, who is drilling a test 1 mile south of Sylvester on a seismograph "high," took the block.

Taylor Test

Bert Fields of Midland, Tex., has spudded a 3,600-foot wildcat test on a block of 7,000 acres covering a seismograph "high" in the southwestern part of Taylor County, near Shep, and about 25 miles southwest of Abilene. Location is on the Search ranch, in section 223, Block 64, H.&T.C. Survey. The test will be drilled by cable tools, the Mercer Drilling Co. of Midland having digging contract.

Gaines Test

Amon G. Carter, Continental Oil Co. and Plymouth Oil Co. have staked an extreme wildcat test location in the southeastern part of Gaines County, on the Giesecke ranch, in the northwest corner of Labour 1, League 296, Reagon County School Lands. It is far removed from previous tests or production.

Another Fisher Test

A 4,500-foot wildcat test is planned by John B. Stribling of Rotan, on a block of 4,500 acres in the western part of Fisher County, on his own lands south of Hobbs, near a 7,500-acre block held by the Humble Oil & Refining Co. The Magnolia Petroleum Co. has also taken a spread in the Stribling block. Location is in section 110, Block 3, H.&T.C. Survey.

A block has been taken west of Claytonville, and adjoining that town, and another is being assembled to the south, extending into Nolan County. Ben Rogers of Midland took the former block.

Another wildcat planned for the county is to be drilled in section 52, Block 2, H.&T.C. Survey, in the Crossroads community, on a block held by the Forest Development Corp. of Abilene.

Stonewall Abandonment

The southeastern Stonewall County wildcat of the General Crude Oil Co., on the Bryan lands, in Subdivision 10, William Vardeman Survey, 7 miles north of Hamlin, has been abandoned at a total depth of 4,372 feet. A saturated zone at 3,509 feet was acidized and shot, but failed to yield oil in commercial quantities. The company is drilling another test in the area, about 1½ miles north of this dry hole. It is seeking production from the same horizon found in the Rotan field in Fisher County, to the southwest.

Ordovician Test Planned

Monte Warner, of Dallas, who formerly operated in Pecos County out of Fort Stockton, has been instrumental in the organization of a corporation headed by L. H. Prichard of Oklahoma City, which is planning to drill an Ordovician test on the well known Fort Stockton "high." It will probably be drilled in the Masterson shallow pool, northeast of Fort Stockton. Other operators, land and royalty owners of the area, are financially interested in the corporation.

WEST CENTRAL AND NORTH TEXAS

A 4,200-foot wildcat Ordovician test has been spudded 9 miles southeast of Baird, in Callahan County, by the Woodley Petroleum Co. on the Jack Flores lands. This will make the fourth deep test drilling in the county. It is located in the northwest quarter of section 149, B.B.B.&C. Survey, in a shallow producing area south of Chautauqua Switch where the Octane Refining Co., owned by the Woodley Petroleum Co., has a small refinery. Deep production here would be a big boon to the company's refinery.

The Phillips Petroleum Co. is also drilling an Ellenberger test in the county, near Scranton in the eastern part of Callahan. It is located in the M. Cherry Survey, on a block of some 4,000 acres. Two deep tests are being drilled near Oplin by Hal Hughes.

Eastern Shackelford County is due another Ellenberger test, on a southwest trend from the area in which Pitzer & West and Humble Oil & Refining Co. drilled four dry holes on the De La Fosse ranch, the first of which showed for a producer from the Ellenberger lime (Ordovician) but which was junked after a premature shot damaged casing in the hole. Joe DeGrazier of Dallas is to sink this new 4,500-foot test, on the Mary O. Harbaugh and others lands, in section 1,563, T.E.&L. Survey.

Kemp City Extension

Three miles northwest of production in the Kemp City, or K-M-A field, in southern Wichita County, E. J. Stump and others have a well and deep extension in the making in their No. 1 J. & J. Waggoner, in the W. R. Eaves Survey, A-753. It logged the deep lime to 3,818 feet and the pay horizon at 3,848 feet, drilling to 3,893 feet to shut down on account of heavy rains. It is to be carried deeper and test made, but while standing shut down filled 3,000 feet with oil.

Three and a half miles east of deep production, Trintex Oils, Ltd., No. 1 Alfred Burnside is also appearing as an eastern extension to the field. It logged the lime at 3,801 feet and cored 18 feet of saturated lime in drilling to 3,936 feet, where pipe was being run preparatory to testing. It is located in the Sharpe Survey.

Abandonments

Roy Westbrook and associates have abandoned their test on the Worthington-Knox lands, located in B.B.B.&C. Survey, about 10 miles north of Jacksboro in Jack County. Total depth is 3,687 feet. It was seeking production from the pay found in the Bryson field to the southwest, and was located on a large block taken several months ago for the test.

Another test in that part of the county, also abandoned, was that of Hanlon-Buchanan, Inc., on the Worthington ranch. It is in the S.A.M.G. Survey, about 6 miles north of Jacksboro. However, this failure did

not discourage the company and it is rigging up rotary for a second try on the Worthington lands, in the same survey. This will test a sand found between 2,630-41 feet, but which was passed up by their first test in seeking deeper production. The deep test went to 3,650 feet.

NORTH TEXAS COMPLETIONS

Archer County

N. Anagnos No. 12 J. S. Bridwell, 971 feet, dry. Bridwell Oil Co. No. 3 L. F. Wilson F, 1,608 feet, dry. Burk Royalty Co. No. 1 J. B. Miller, 4,006 feet, dry. L. T. Burns No. 1 J. M. Powell, 2,823 feet, dry. White & Duncan No. 1 Sallie B. Dycus, 1,002 feet, dry.

Baylor County

Consolidated Oil Co. No. 2 Fortwood EE, 1,437 feet, dry.

Cooke County

J. W. Dutton No. 1 Ed Wilson, 2,072-2,102 feet, 25 bbls. Kiel & Kiel No. 2 J. J. Perkins, 1,190 feet, dry. F. Schoonover, Jr., No. 4 Ed Wilson, 1,890-1,915 feet, 40 bbls.; No. 6 Ed Wilson, 1,930 feet, dry. Whitfield and others No. 1 Rose, 1,935-50 feet, 15 bbls.

Denton County

Miller Bros. No. 1 D. H. Luster, 2,506 feet, dry.

Montague County

Benton & Holmes No. 17 Davenport B, 2,348-2,368 feet, 50 bbls. Bridwell Oil Co. No. 4 Mrs. L. J. Cunningham D, 1,353 feet, dry. Lesh & McCall No. 1 S. E. Bell, 4,130 feet, dry. Sinclair Prairie Oil Co. No. 1 W. C. Combs, 1,852 feet, dry; No. 20 D. T. Holt, 1,732-56 feet, 256 bbls. J. W. Sorrell and others No. 1 J. E. Walthall, 2,002 feet, dry.

Jack County

R. D. Compton Oil Co. No. 6 O. Loving, 362 feet, dry. Hanlon Buchanan, Inc., No. 1 E. R. and W. Worthington, 3,560 feet, dry. Hammon & Herbert Oil Co. No. 3 F. H. Rhodes, 2,426 feet, dry. Hill & Hill No. 7 R. C. and C. P. Clayton B, 2,974-3,093 feet, 525 bbls. Long & Wolfe No. 2 G. T. Smith, 2,943-85 feet, 400 bbls.; No. 3 G. T. Smith, 2,931-2,975 feet, 401 bbls. Martex Oil Co. No. 11 J. R. and C. P. Clayton, 2,927-3,050 feet, 102 bbls. Nelson Oil Syndicate No. 1 J. E. Henderson, 2,782-2,990 feet, 150 bbls. Producers Development Co. No. 1 M. A. Sampley and others, 2,946-2,993 feet, 70 bbls. oil, 6,500,000 feet of gas. Two Well Oil Co. No. 3 S. M. Jones, 3,193-3,230 feet, 405 bbls. R. A. Westbrook No. 1 Worthington and others, 3,687 feet, dry. W. R. Worthington No. 6 J. R. and C. P. Clayton and others 2,961-92 feet, 215 bbls.

Wichita County

L. T. Burns No. 1 S. I. and H. M. Munger, 3,702-3,886 feet, 50 bbls. R. R. Clark and others No. 41 W. P. and J. F. Bickley, 1,986-89 feet, 30 bbls. King Oil Co. No. 4 T. L. Burnett and others B, 923 feet, dry. Pois & Schulz No. 7 Foster A, 1,890 feet, dry. Reed Glass & Crenshaw No. 11 First National Co., 3,668-3,845 feet, 550 bbls. Ryan Consolidated Petroleum Co. No. 117 G. L. Nance, 484-501 feet, 6 bbls.

Young County

P. Atchley No. 1 G. N. Hunter, 650 feet, dry. C. E. Beavers No. 1 J. G. Taack, 800 feet, dry. A. B. Bissey No. 1 J. D. Cunningham, 600 feet, dry. Chambers & Hanks No. 1 E. A. Edwards, 950 feet, dry. A. L. Duff, Jr., No. 1 Mrs. A. E. Logan, 684 feet, dry. H. R. Edwards No. 1 M. K. Graham, 3,467 feet, dry. B. C. Gilmore No. 1 Liftin Bros., 630 feet, dry. L. C. Heydrick No. 1 S. R. Jeffery, 790 feet, dry. Al Horwitz and others No. 10 J. D. Lowe, 793 feet, dry.

T. D. Humphreys No. 1 F. F. Shields and others, 3,805-3,920 feet, 2,000 bbls. Homer Lee No. 11 J. L. Boone, 502-19 feet, 20 bbls. R. H. Vise No. 3 R. W. Easterling, 3,842-98 feet, 50 bbls. West & Honea No. 2 B. N. Honea, 817-30 feet, 72 bbls. A. T. Strong No. 2 G. W. McDomas, 3,782-3,857 feet, 775 bbls. H. J. Cox and others No. 1 Leona McCluskey, 1,517 feet, dry. C. E. Knox No. 3 W. D. Worsham, 2,684-2,703 feet, 190 bbls. Lupton & McLester No. 3 C. M. Gibson and others, 3,666-3,698 feet, 525 bbls. Rathke Oil Co. No. 3 J. T. Rogers, 3,970-4,032 feet, 15 bbls. Welsh & Lennon No. 1 George Garrett, 552 feet, dry.

WEST TEXAS COMPLETIONS

Andrews County

Humble Oil & Refining Co. No. 12 Means, 4,500-54 feet, acidized, 380 bbls. on pump. Standard Oil Co. of Texas No. 2 Gray, 4,310-4,477 feet, shot, 280 bbls.

Crane County

E. E. Fogelson No. 8-C University, 3,375-3,582 feet, shot, 731 bbls. Gulf Oil Corp. No. 2 McKnight, 5,390-5,404 feet, plugged back to 3,650 feet, shot, 114 bbls. oil and 125 bbls. water on pump. Peters & Hargrave No. 1 Hughes, dry and abandoned, 2,700 feet.

Ector County

Landreth Oil Corp. No. 5-E Scharbauer, 4,157-4,212 feet, acidized, 1,369 bbls. Shasta Oil Co. No. 1 Sands, dry and abandoned, 4,521 feet, elevation 3,184 feet. Stanolind Oil & Gas Co. No. 59 Cowden, 4,064-4,301 feet, shot, 1,311 bbls. Texas Pacific Coal & Oil Co. No. 8 Scharbauer, 4,160-4,255 feet, acidized and shot, 2,800 bbls. York & Harper No. 3-B Foster, 4,088-4,285 feet, shot, 769 bbls.

Gaines County

A. G. Carter No. 1 Sharp, 4,937-94 feet, acidized, 1,411 bbls.

Hockley County

Bates & Phillips No. 1 F. S. Lockett, dry and abandoned, 5,260 feet, elevation 3,453 feet.

Howard County

Magnolia Petroleum Co. No. 1 O'Daniel, 2,695-2,897 feet, shot, 608 bbls. R. J. Wallace No. 1 Foster, 2,600-2,800 feet, shot, 372 bbls.

Pecos County

Superior Oil Co. of Tulsa No. 2 Ohio-Brandenberg, 2,195-2,283 feet, shot, 139 bbls.

Stonewall County

General Crude Oil Co. No. 1 Bryan, dry and abandoned 4,372 feet, elevation 1,679 feet.

Upton County

Basin Oil Co. No. 4-D Baker, 2,349-88 feet, acidized, 987 bbls. Choate & Hogan No. 4 Baker, 2,342-2,405 feet, acidized, 1,073 bbls. on pump. Gulf Oil Corp. No. 4-C Lane, 2,195-2,225 feet, acidized, 57 bbls. and 31

(Continued on Page 103)

The Power of $50,000,000.00

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North Louisiana, Arkansas

PROSPECTS OF OIL FIELD IN COLUMBIA AREA, ARKANSAS

By MITCHELL TUCKER

SHREVEPORT, La., Oct. 18.—The probability of a new oil field in Columbia County, Arkansas, headed the list of rapid developments in the Ark-La-Tex area last week.

Standard Oil Co. of Louisiana No. 1 J. P. McKean, SW section 8-16s-22w, Columbia County, Arkansas, topped the "Big lime" (thought to be the Permian) at 7,151 feet and drilled and cored to the present total depth of 7,204 feet. A drill stem test was made of this section, and after being open for 20 minutes, stem filled up 1,680 feet with 31.2-gravity oil and 30 feet with mud, quarter-inch choke on top and three-eighths inch choke on bottom. The 7-inch casing has now been set and cemented on bottom preparatory to testing.

Estimated Daily Production

Estimated daily gross production all companies week ending October 16:

NORTH LOUISIANA

	Bbls.
Bellevue	740
Caddo light	3,845
Caddo heavy	2,630
Converse	640
Cotton Valley heavy	445
Cotton Valley light	*3,400
De Soto and Red River	1,475
Elm Grove	400
Haynesville	3,100
Holly	85
Homer	2,465
Lisbon	5,370
Pleasant Hill	130
Rodessa	44,010
Sarepta-Carterville	315
Sligo	325
Sugar Creek	405
Urania	2,750
Zwolle	680
Total	73,260

SOUTH ARKANSAS

Champagnolle	1,315
El Dorado	1,940
Lisbon	285
Miller County	425
Nevada	725
Rodessa	10,595
Schuler	6,295
Smackover light	2,075
Smackover heavy	17,000
Stephens	575
Troy	565
Urbana	1,190
Total	42,985

Texas side of Rodessa field 28,485 bbls. daily.

*2,955 bbls. is distillate.

RODESSA—ARKANSAS

Nine new completions in the rapidly developing Arkansas portion of the Rodessa field were reported together with an indicated 2½-mile extension to the east. Daily average production was 10,598 bbls. last week in the Arkansas portion of the field, or an average of 505 bbls. per well per day. The per well average is 108 bbls. on the Louisiana side and 81 bbls. on the Texas side. The Arkansas Board of Conservation is to hear testimony on the need for proration restrictions at Rodessa on October 22, 1937, in their offices in El Dorado, Ark.

Giving promise of extending Arkansas Rodessa production 2½ miles to the east, F. W. Burford No. 1 August, section 8-20-27, is being closely watched after it made several small flows of oil. The hole was acidized and swabbing is to be resumed soon for a thorough test of the well's commercial possibilities. Total depth is 6,160 feet.

F. W. Burford No. 1 Ahern, S half NE SW section 10-20-28, flowed 33 bbls. hourly on initial test, total depth 6,107 feet.

H. L. Hunt No. 1 Womack, SE section 10-20-28, flowed 160 bbls. per day, total depth 6,130 feet.

McClanahan and others No. 5 Capps, NW SW SW section 11-20-28, flowed 48 bbls. hourly through 1-inch tubing choke, total depth 6,075 feet. Saturated lime was drilled from 6,042-50 feet and 6,064-74 feet, or a total of 18 feet.

H. L. Hunt No. 2 Womack, NE SW SE section 10-20-28, flowed 618 bbls. in 18 hours, total depth 6,120 feet.

Roger Lacey No. 1 Grogan, SE section 15-20-28, flowed 54 bbls. hourly on initial test, total depth 6,041 feet.

McClanahan and others No. 2-B Capps, N half SW SW section 12-20s-28w, flowed 65 bbls. hourly through 1¾-inch tubing choke from a total of 15 feet of saturation, total depth 6,112 feet.

Roberts Bros. Drilling Co. No. 2 W. A. Capps, SW NW SE section 16-20-28, flowed 10 bbls. hourly through 1-inch tubing choke, total depth 6,083 feet. Their No. 3 W. A. Capps, SE SW NE section 16-20-28, flowed 44 bbls. hourly through five-eighths inch tubing choke, total depth 6,011 feet.

RODESSA—LOUISIANA

Bringing total producers in the Louisiana portion of the Rodessa field to 414, R. W. Norton No. 10 Starke, NW section 17-23-16, was completed flowing 8 bbls. hourly through one-eighth inch tubing choke, total depth 5,980 feet.

RODESSA—TEXAS

Two completions were made in the Marion County portion of the Rodessa field, near the Lodi area, bringing total producers on that side of the field to 352.

Arkansas-Louisiana Gas Co. No. 1 J. P. Fant, L. P. Cadenhead Survey, was completed flowing on gas lift at the rate of 50 bbls. daily, total depth 6,150 feet.

The Hunter Co. No. 3 Fonda, A.D.S. Coy Survey, pumped 162 bbls. daily, total depth 6,143 feet.

LOUISIANA

Bossier Parish

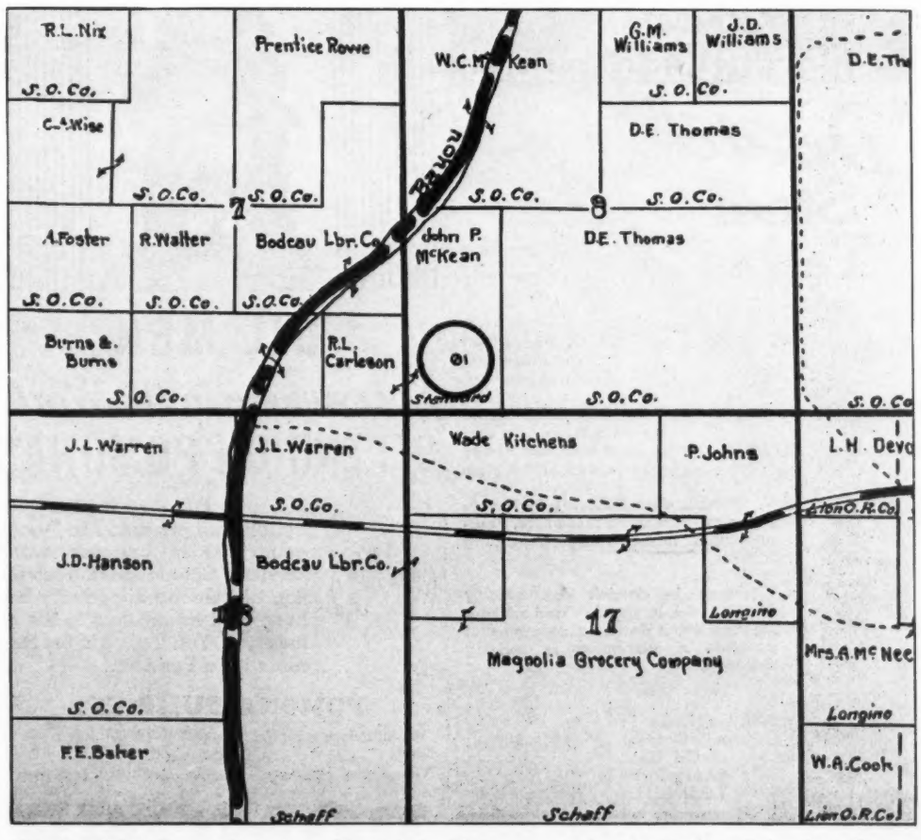
Triangle Drilling Co. No. 1-A Schuler Estate, SE NW section 13-17-12, continues to swab and test the upper oil level recently opened to production. After acidizing with 1,500 gallons the well flowed 30 bbls. hourly for three hours and went dead. Total depth is 3,117 feet, a new level of production for the Sligo field. Gas production has heretofore been found on this structure at about 880, 2,450, 2,590, 2,780 and 4,270 feet, while six oil wells have been brought in from about 5,150 feet on the southwestern flank of the field.

Concordia Parish

Coastal Mineral & Development Co. No. 1 Winsten, NW cor. section 23-7-9e, has reported a showing of oil from 2,050 to 2,060 feet, total depth 2,090 feet. After running Schlumberger survey, preparations are being made to set casing.

Claiborne Parish

Drilling activity has rapidly fallen off in the Lisbon



Standard Oil Co. of Louisiana No. 1 J. P. McKean, section 8-16s-22w, Columbia County, Arkansas, appeared as a probable field opener after favorable drill stem test. Total depth 7,204 feet in the "Big lime"

Not Just Ordinary Cups

Take just a few minutes to talk with other production men about valve cups and you will soon learn why O'Bannon Cups are not "just ordinary cups." The hole is dead centered, the outside diameter absolutely accurate, and the edges smooth—not frayed and ragged. In a nut shell, these cups are an O'Bannon product —your guarantee of the highest grade materials and finest workmanship.

Save money and time—don't use "just ordinary cups"—use O'BANNON CUPS.

Manufactured by Walter O'Bannon Co., Tulsa, Oklahoma

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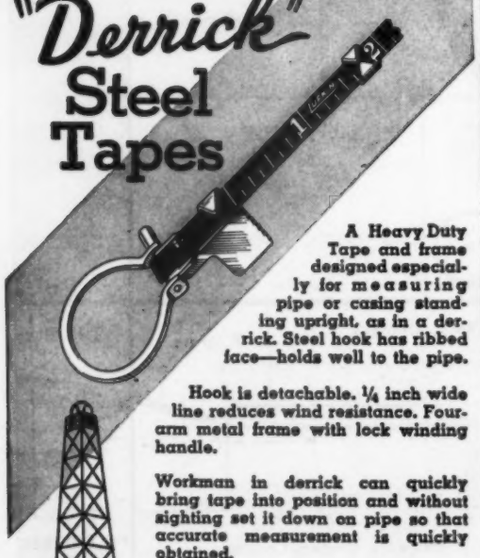
NEW BOXES

The next time you are in your supply store, look for the bright red containers in which O'Bannon Cups are now packaged.

O'BANNON
VALVE CUPS

LUFKIN
TAPES - RULES - TOOLS

"Derrick" Steel Tapes



A Heavy Duty Tape and frame designed especially for measuring pipe or casing standing upright, as in a derrick. Steel hook has ribbed face—holds well to the pipe.

Hook is detachable. 1/4 inch wide line reduces wind resistance. Four-arm metal frame with lock winding handle.

Workman in derrick can quickly bring tape into position and without sighting set it down on pipe so that accurate measurement is quickly obtained.

See listings in Composite Catalog of Oil Field and Refinery Equipment.

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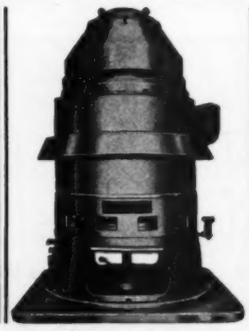

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POMONA
TURBINE PUMPS

field after the crude oil outlet was sharply cut from 13,000 to 5,000 bbls. by Gulf Pipe Line Co., the only line running out of that field. For the past seven-day period Gulf Pipe Line ran 37,604 bbls., or an average of 5,372 bbls. per day. Movement was taken ratably from the 124 producing wells in the field, or an average of 43 bbls. per well per day. Daily allowable per well averages over 100 bbls.

Six new completions were made at Lisbon last week, bringing total producers to 130.

R. L. Bauman No. 1 C. S. L. Patton, NW SW NE section 1-20-5, flowed 85 bbls. hourly, total depth 5,347 feet.

A. O. Olson No. 2-B T. F. Patton Estate, N half SE SW, section 20-21-4, flowed 22 bbls. per hour, total depth 5,128 feet.

Scouts Oil Corp. No. 1 Bean, E half NE NW section 32-21-4, flowed 16 bbls. hourly on initial test, total depth 5,159 feet.

Sloan and Zook No. 3 W. H. & M. Patton, section 1-20-5, flowed 40 bbls. hourly through 28/64-inch tubing choke, total depth 5,280 feet.

Magnolia Petroleum Co. No. 1 F. Corbin, W half NE NE section 6-20-4, Lincoln Parish, flowed 400 bbls. daily, total depth 5,336 feet.

Red Iron Drilling Co. No. 1 T. F. Patton, NW SW NE section 6-20-4, Lincoln Parish, flowed 7 bbls. hourly, total depth 5,236 feet.

Red River Parish

Gulf Refining Co. No. 42 E. T. Robinson, NW section 25-13-11, in the Bull Bayou field, pumped 11 bbls. daily upon completion, total depth 2,552 feet.

Webster Parish

As the week closed, it appeared that the deep Bodcaw sand production at Cotton Valley had been extended another half-mile north, as Ohio Oil Co. No. 1 Crichton, section 21-21n-10w, was flowing at the rate of 247 bbls. of distillate in 13 hours through five-sixteenths inch tubing choke, casing pressure 2,900 pounds, tubing pressure 2,800 pounds, total depth 8,503 feet.

The old Shongaloo gas area of northern Webster Parish is expected to receive its first Lower Marine test soon, as Magnolia Petroleum Co. is making preparations to drill an 8,000-foot test in section 32-23-9.

ARKANSAS

Ouachita County

Benedum & Trees No. 1 G. W. Slaughter, NW section 24-14-19, has been plugged and abandoned at a total depth of 3,001 feet, after finding the Tokio dry from 2,257 to 2,280 feet.

Union County—Schuler

Boom activity is returning to the Schuler field of southern Union County, Arkansas, as six new locations are rigging up or drilling over the past week, all having the 7,600-foot horizon as their objective. The E. M. Jones No. 1 Marine Oil Co. has now been producing from the Big lime for almost three weeks and its production has been rather well sustained after normal decline from its initial flush gauge of 2,600 bbls. per day. For the last 24 hours this well gauged 1,192 bbls. of net oil, 20 per cent salt water, through 22/64-inch tubing choke, casing pressure 2,700 pounds, oil gravity 31.8. A total of more than 80 feet of oil saturated sand in the Lower Marine Trinity was reported to have been drilled here prior to setting casing.

Lion Oil Refining Co. has determined to drill its No. 1-A Edna Morgan, section 18-18-17, through this section and on to the Big lime (Permian) expected at around 8,000 feet. They logged thick sections of the oil pay from which E. M. Jones' discovery well is producing, but have elected to continue drilling for a thorough exploration of deeper possibilities before placing the well on production.

EAST TEXAS (Border Counties)

Panola County

Magnolia Petroleum Co. No. 2 E. A. Hull, Thomas Applewhite Survey, is reported to have encountered some showings of gas in the Lower Marine, present total depth 8,713 feet. Some difficulty was experienced in getting 7-inch casing to bottom for testing, so same has been pulled and drill pipe run for circulating and reconditioning of hole.

Danciger and others No. 1 Tatum, Alfred Bissell Survey, in the southeastern portion of Panola County near the gas-distillate production opened by these operators several months ago, has set and cemented production string at a total depth of 6,514 feet.

Oklahoma Operations

By
DAL DALRYMPLE

COAL OUTPOST SHOWING OIL; HUGHES WILDCAT PROMISING

The Centrahoma area of Coal County held major interest for Oklahoma oil men the past week as Carter Oil Co. and associates endeavored to complete No. 1 Claytor, C W half NE SW section 27-2n-9. After being shut in over night it was opened up and flowed 154 bbls. of oil in 20 minutes and died. It was shut in again for two hours and when opened made one head flow of 11 bbls. of oil and died. The swab was run three times and 44 bbls. of oil were recovered, and operators were continuing to swab. It topped Viola lime at 6,008 feet, total depth 6,217 feet. If satisfactory production is not obtained at present depth, the hole may be deepened in Viola lime or to Bromide horizon. It is about five-eighths of a mile north of the same operators' discovery well on the Centrahoma structure.

Phillips Petroleum Co. No. 1 Becker, NE NW SW section 8-5-10, wildcat south of Calvin in Hughes County, was bottomed at 4,424 feet in sand with an odor of oil. The crew was to ream the hole to 4,419 feet and test. Earlier in the week it showed 6,000,000 feet of gas from Cromwell sand on a drill-stem test.

Extension of the Billings field of Noble County to the east was blocked when Darby Petroleum Corp. No. 1 McCoy, SE SE SW section 24-23-2w, more than a mile east of the field, was shut down after 3,800 feet of salt water rose in one hour. It had Wilcox sand at 4,757-66 feet, total depth.

The north extensioner of the Fitts field, Pontotoc County, flowed 176 bbls. of oil, with 1,500,000 feet of gas, when opened for five hours Friday. It is the W. F. Smith, N. D. Christian and Arrow Drilling Co. No. 1 Christian (Banks), SW SE SE section 16-2n-7. It was bottomed at 4,246 feet and was producing from Hunton lime through perforations.

Wildcat Completions

Only two wildcat tests were completed in Oklahoma the past week and both were failures.

M. J. Andrichak No. 1 Korthouse, NW NE SW section 35-2n-10w, wildcat east of the Lawton area in Comanche County, was dry and abandoned in broken shale and sand at 1,095 feet, total depth.

Ernest L. Lippert and associates No. 1 Miller, NW cor. section 4-2n-18w, wildcat on the extreme east side of Jackson County, had Granite Wash at 637-713 feet, total depth, the hole filled with water and a small show of oil and it was abandoned.

Pontotoc County

Four wells were completed in the Fitts district, Pontotoc County. Skelly Oil Co. No. 1 Daniel, SE SE NW section 21-2n-7, topped Hunton lime at 3,822 feet, total depth 3,868 feet, was acidized with 10,000 gallons, and made potential of 1,178 bbls. of oil, cutting more than 20 per cent salt water.

Magnolia Petroleum Co. No. 35 Metropolitan Life, SW NE NE section 27-2n-7, found Cromwell sand at 2,500 feet, was bottomed at 2,558 feet and flowed 294 bbls. of oil through casing in the first 24 hours.

Amerada Petroleum Corp. No. 20 Woolley, SW SE SE section 21-2n-7, flowed 252 bbls. of oil in 18 hours from Cromwell sand topped at 2,580 feet, total depth 2,645 feet.

Shell Petroleum Corp. No. 2 McKinley, SW NE NW section 23-2n-7, found Hunton lime at 3,917 feet, total depth 4,039 feet, and flowed 122 bbls. of oil and 20 bbls. of water the first hour. Later, it swabbed 22 bbls. of oil in four hours and was completed for potential of 102 bbls. of oil on the swab, cutting a small amount of water.

H. & M. Drilling Co. and W. A. Delaney No. 4 Harreld, SE NE SE section 29-5-8, Allen area, had a junked hole and was abandoned after plugging back to 810 feet from total depth of 921 feet.

New work in Pontotoc County: Clark & Cowden No. 1 Mayhue, SW NE SE section 20-2n-6, cellar and pits; Magnolia Petroleum Co. No. 2 Mayhue, SW SE NE section 20-2n-6, location; H. L. Blackstock and Magnolia Petroleum Co. No. 2 Steed, SE NE NE section 35-2n-6, spudded; Magnolia Petroleum Co. No. 15 Norris, SW SW SE section 21-2n-7, building rig; same company's No. 9 Woolley, SE cor. section 21-2n-7, building rig; same company's No. 22 Simpson, NW NE NE section 29-2-7, an old well, deepened from 2,608 feet to 2,630 feet, running tubing; A. L. Bowles and others No. 1 Maine, NW NW NE section 11-4-6, rigging up; H. & M. Drilling Co. and W. A. Delaney No. 5 Harreld, SW NE SE section 29-5-8, location.

Creek County

Glen Campbell No. 5 Purcell, NE NW NE section 22-19-9, Creek County, Mannford area, had Bartlesville sand at 2,260-68 feet, total depth, and was completed as a 10-bbl. pumper.

Bookout and others No. 2 Patrisic, SW NE SW section 12-19-9, topped Layton sand at 1,172 feet, total depth 1,192 feet, and pumped 25 bbls. of 38-gravity oil daily.

Big Four Petroleum Co. No. 2 Smith, NE NE NE section 13-19-7, topped Bartlesville sand at 2,673 feet, had a hole full of water at 2,755 feet, total depth, and was abandoned.

Link Oil Co. No. 8 Jones, NW SE NE section 32-18-7, an old well in the Cushing field, was deepened from 1,428 feet to Prue sand at 2,219 feet, total depth 2,270 feet, and pumped 40 bbls. of oil daily, recompleted.

Schoolcraft & Ferguson No. 6 Fulkerson, NE SW SE section 5-17-7, an old well, was deepened from 1,458 feet to 2,256 feet, had a junked hole and was abandoned.

Pure Oil Co. No. 16 Richard, SE NE SE section 4-17-7, topped Bartlesville sand at 2,620 feet, had Wilcox sand at 2,706-10 feet, total depth, plugged back to 2,701 feet and pumped 105 bbls. of oil and 18 bbls. of water in 24 hours. Gravity of the oil was 39.6 degrees.

Same company's No. 4 Richard, NE NE SE section 4-17-7, an old well, was deepened from 2,615 feet to 2,670 feet, and pumped 9 bbls. of oil and 8 bbls. of water daily, recompleted.

Lease Investment Co. No. 1 Allen, NE SE SE section 35-15-10, had pay at 2,549-50 feet, total depth, and was completed as an 85-bbl. pumper.

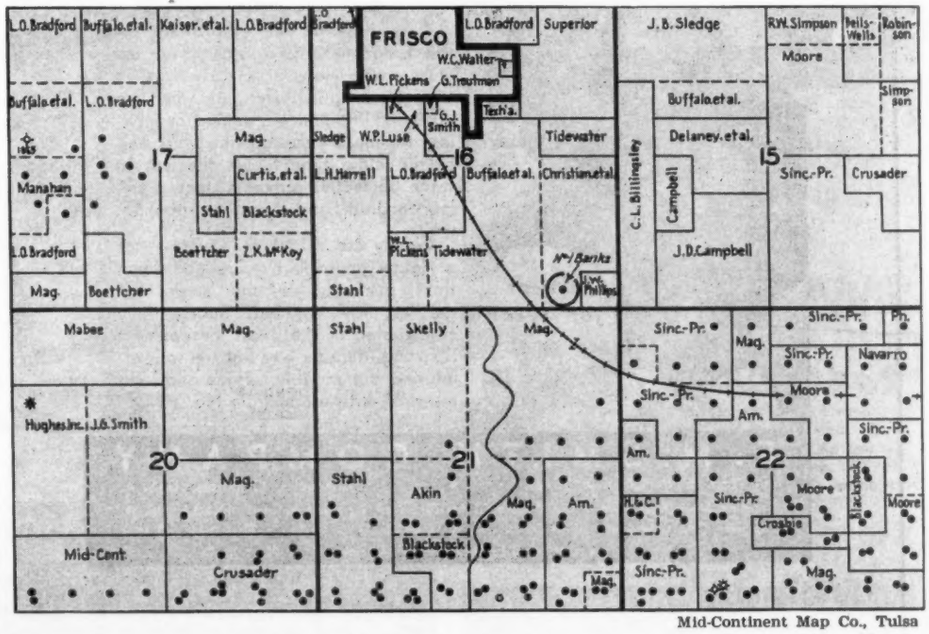
J. Clyde Fowler and others No. 1 Baker, NW NE SW section 20-17-9, was completed at 2,690 feet, producing 1,702,000 feet of gas at 2,673 feet.

Sinclair Prairie Oil Co. No. 10 Jones, C S half NE NW section 4-17-7, topped Bartlesville sand at 2,468 feet, total depth 2,565 feet, plugged back to 2,562 feet, was shot and pumped 1½ bbls. of oil daily.

New work in Creek County: Magnolia Petroleum Co. No. 3 Tiger, SW NW SE section 17-17-7, an old well, was to be deepened from 2,375 feet; E. G. Betts No. 1 Warmack, NW SW NW section 26-17-7, spudded 75 feet; Link Oil Co. No. 7 Jones, SE NE SE NE section 32-18-7, an old well, deepened from 1,429 feet to 2,350 feet, reaming hole; Texas Co. No. 11 McIntosh, SE NE SW section 3-17-7, an old well, cleaning out at 2,590 feet; H. D. Daniels No. 1-B Riley, SE SW SW NE section 24-18-10, total depth 738 feet, cleaning out; Alma Peru Oil Co. No. 2 McKee, NW SW NW section 7-17-8, total depth 2,848 feet, set 7-inch at 2,835 feet, waiting on cement; Big Four Petroleum Co. No. 3 Cubbie, SW SE SW section 19-17-8, drilling at 860 feet; W. C. Norris, Inc., No. 1 Bruce, SE NE NE section 22-17-9, rigging up machine; Central Commercial Oil Co. No. 1 Hays, NE NW SW section 10-17-10, an old well being deepened from 2,009 feet, drilling at 2,475 feet; A. W. Swift & Co. No. 2 Hayden, NE SW SW section 12-19-9, drilling at 750 feet; Bruin Oil Co. No. 2 Morton, NE NW SE section 27-14-10, rigging up machine.

Seminole County

Amerada Petroleum Corp. and others No. 2 Ellis, NW SE NE section 2-10-5, North Earlsboro area, Seminole County, topped Wilcox sand at 4,626 feet, total



Mid-Continent Map Co., Tulsa

Hunton lime zone of the Fitts field, Pontotoc County, was extended northward at Smith, Christian and Arrow Drilling Co. No. 1 well in section 16-2-7

depth 4,642 feet, and swabbed 289 bbls. of oil in six hours.

Paul Traugh No. 3 Scroggins, NW NE SE section 22-6-6, had Boggy sand at 2,350 feet, total depth 2,363 feet, was shot and flowed and swabbed 250 bbls. of oil in 24 hours.

Foster Development Co. No. 1 Yahola, SW SE SW section 22-10-8, was an abandoned location.

Four new operations were reported in Seminole County. Vierson Oil & Gas Co. No. 1 Cynda, SE NE SW section 25-5-7, was a rig. Walter Neustadt No. 1 fee, NE SE SW section 25-5-7, had dug cellar and pits. Sunshine Oil Co. No. 1 Ferguson, SE SW NE section 7-7-8, wildcat south of the Wewoka area, was a rig. Devonian Oil Co. No. 1 Whitworth, SE SW NW section 27-7-7, was a rig.

Lincoln County

Amerada Petroleum Corp. and others No. 1 Ladar B, NE NE SW section 10-12-5, South Wilzetta area, Lincoln County, topped Viola lime at 4,473 feet, Dense 4,513 feet, Dolomite 4,515 feet, first Wilcox sand 4,541 feet, second Wilcox sand 4,565 feet, total depth 4,566 feet, plugged back to 4,538 feet and acidized. It swabbed 168 bbls. of oil net in 24 hours, was reacidized and pumped 305 bbls. of oil in 20 hours.

Gulf Oil Corp. No. 2 Lee, SW NW SW section 36-15-2e, North Wellston area, had Wilcox sand at 5,090 feet, total depth 5,111 feet, flowed 573 bbls. of oil in the first 24 hours.

Skelly Oil Co. No. 3 West Sporn, NW NW SW section 21-17-3e, Sporn area, found Wilcox sand at 4,578 feet, was bottomed at 4,623 feet, acidized and pumped 25 bbls. of oil and 10 bbls. of water in 24 hours.

Wilcox Oil & Gas Co. No. 5 Sac & Fox, SW NE SW section 15-14-6, rigging up rotary.

Pottawatomie County

Magnolia Petroleum Co. No. 2 West, SW SE NE section 28-6-4, Gray pool, Pottawatomie County, had Simpson Dolomite at 3,363 feet, total depth 3,396 feet, was treated with 5,000 gallons of acid and pumped 92 bbls. of oil net in 24 hours.

E. W. Jones and others No. 1 Polk-Po-Go-Mo-Me, SE NW NE section 35-7-4, St. Louis field, topped Simpson Dolomite at 4,140 feet, total depth 4,175 feet, plugged back to 4,168 feet. It swabbed 35 bbls. of oil with a slight showing of water in 24 hours; was acidized and pumped 85 bbls. of oil net and 1,800 bbls. of water in 24 hours.

Magnolia Petroleum Co. No. 1 Green, SW SW NW section 13-7-4, an old well, was plugged back from 4,379 feet to 3,335 feet, shot and flowed 324 bbls. of oil in 24 hours, recompleted.

Denver Producing & Refining Co. No. 3 Risenhoover, SE SE NE section 14-7-4, was a rig.

Estimated Daily Production

Estimated daily average production of Oklahoma for the week ending October 16 and for the preceding week was as follows:

	Barrels	
	Oct. 16	Oct. 9
Allen	5,225	5,200
Billings	7,100	6,850
Burbank	7,925	7,950
South Burbank	14,100	14,250
Balance Osage	20,500	20,250
Blackwell district	5,050	5,025
Bristow-Slick	7,225	7,175
Chandler	2,825	2,800
Crescent	8,325	7,625
Cromwell	3,450	3,425
Cushing-Shamrock	11,025	11,000
Duncan district	3,950	3,975
Edmond	14,950	15,500
Fish	5,500	6,000
Fitts	79,950	70,225
Jesse	4,025	2,375
Graham	4,425	4,400
Gray	1,275	1,200
Healdton	10,175	10,100
Hewitt	4,275	4,275
Holdenville	875	875
Keokuk	7,350	7,275
Konawa	1,675	1,625
Lucien	14,400	13,875
Moore	10,050	9,850
Oklahoma City	144,750	150,575
Olympic	10,900	10,650
Polo	900	875
Sasakwa and townsite	2,525	2,150
Sholem-Alechem	3,075	3,050
Seminole:		
Bowlegs	11,450	11,475
Carr City	5,000	4,925
Earlsboro	6,125	6,275
South Earlsboro	700	725
East Earlsboro	7,375	7,475
Little River	9,550	9,625
East Little River	1,150	1,125
Maud	725	750
Mission	1,975	2,000
Seminole	9,750	9,725
East Seminole	2,325	2,325
Searight	4,175	4,325
Total Seminole	60,300	60,750
St. Louis-Pearson	19,975	18,650
Tatums	5,925	5,825
Tonkawa-Garber-Thomas	4,500	4,475
Wewoka	2,800	2,775
Yale-Jennings	4,175	4,200
Other pools	79,975	78,975
Total Oklahoma	595,425	586,050

Osage County

Lewis Production Co. and Phillips Petroleum Co. No. 3 Fred Lookout, topped Bartlesville sand at 2,680 feet, total depth 2,712 feet, was shot and flowed 89 bbls. of oil the first 24 hours through tubing, and 63 bbls. of oil the next 24 hours.

Kewanee Oil & Gas Co. No. 1 Osage, SE SE SW section 7-26-6, had a hole full of water and was dry and abandoned at 3,403 feet, total depth.

Turman Oil Co. and others No. 34 Osage, SE NW NW section 13-23-8, was dry and abandoned at 1,954 feet, total depth.

S. W. Anthony No. 2-B White, SW NW NW section 4-16-12, an old well being deepened from 1,125 feet, was drilling at 1,600 feet. E. A. Babcock No. 1 Osage, SW SE NE section 14-22-10, was a location. Lewis Production Co. and Phillips Petroleum Co. No. 4 Osage, SW NE NW section 9-24-7, was a location.

Noble County

Sinclair Prairie Oil Co. No. 1 Cawood, C SW NW section 27-20-2w, an old well on the east side of the Lucien field, Noble County, was deepened from 4,983 feet to 5,118 feet, flowed 85 bbls. of oil daily from Misener sand at 4,955-63 feet, and was recompleted.

Cleveland County

Gulf Oil Corp. No. 2 James, SE NW SW section 27-10-2w, an old well in the Moore area, Cleveland County, was deepened from 7,281 feet to 7,289 feet and recompleted as a 200-bbl. minimum well.

Sinclair Prairie Oil Co. and others No. 1 Gross, SW SW NE section 22-10-2w, was digging cellar, for a water disposal well.

Logan County

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 9 Pfeiffer, NW SW SW section 33-20-2w, Logan County sector of the Lucien field, topped first

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Wilcox sand at 4,858 feet, second Wilcox sand 4,950 feet, total depth 5,070 feet. It flowed 2,365 bbls. of oil in 12 hours through casing, and made potential of 4,437 bbls. of oil, with 5,000,000 feet of gas.

Same operator's No. 10 Pfeiffer, C N half S half SW section 33-20-2w, was a location.

Pawnee County

Tuttle Oil & Gas Co. No. 1 Degner, SE NE NE section 22-20-7, Pawnee County, was bottomed at 3,071 feet, plugged back to 2,755 feet and was dry and abandoned.

S. C. Williams No. 2 Kinny, NW NW NE section 2-20-8, Lauderdale area, topped Chat at 2,530 feet and was dry and abandoned at 2,534 feet, total depth.

Peter Adams No. 9 Thomas, SE SE SW section 25-21-8, was drilling at 500 feet. J. L. Reynolds and others No. 9 Mayfield, SW SW SE section 11-20-8, was drilling at 505 feet.

Payne County

R. L. Kemp and associates No. 1 Rafferty, SE SE NE section 6-18-5, wildcat west of the West Norfolk pool, Payne County, was a cellar.

Okmulgee County

W. W. Granfield No. 1-A Anderson, NE NE SE section 8-14-15, Okmulgee County, had sand at 1,550-75 feet, total depth, and was completed as a 10-bbl. pumper.

Francis Oil Co. No. 2-A Lamons, C N half NW NW section 33-15-14, topped sand at 1,494 feet, total depth 1,515 feet, was shot and pumped 5 bbls. of oil daily.

W. B. Pine and B. H. Young No. 1 Miller, C E half NW SE section 5-15-14, was bottomed at 1,580 feet and produced 10,260,000 feet of gas.

R. H. Ford and others No. 5 Havercamp, C SW NE section 29-14-15, topped Booch sand at 1,306 feet, had a 2-bbl. show of oil, but was abandoned.

J. E. Dow and others No. 1-A Adams, SE SW SW section 12-14-14, was a location.

Tulsa County

S. W. Anthony No. 10 Wilcox, NW NE NW section 3-16-12, Tulsa County, topped Wilcox sand at 2,243 feet, total depth 2,275 feet, was shot and swabbed and flowed 200 bbls. of oil in 24 hours.

R. E. Downing No. 1 McClarin, NE NE NW section 31-17-14, had Dutcher sand at 1,404 feet, total depth 1,436 feet, and produced 4,000,000 feet of gas.

J. D. Swift and others No. 1 Bruner, SE NE SE section 34-19-10, topped Prue sand at 1,572 feet, total depth 1,621 feet and was dry and abandoned.

Johnson Oil Refining Co. No. 2 Hayden, SE SE NW section 31-19-10, an old well, was dry and abandoned after deepening from 2,287 feet to Mississippi lime at 2,675-2,700 feet, total depth.

R. E. Downing and others No. 1 Call, NE SE SW section 30-17-14, was rigging up machine. Johnson Oil Refining Co. No. 7 Bailey & Grimes, SE SE SW section 31-19-10, was rigging up machine.

Muskogee County

Conrad Lambert No. 4 Summers, SW NE NW section 6-15-15, Muskogee County, had sandy shale at 1,268-1,356 feet, total depth, and was dry and abandoned.

Coal County

Continental Oil Co. No. 2 Clelland, SE NW NE section 26-1n-8, Coal County, topped Atoka sand at 719 feet, total depth 755 feet, swabbed 58 bbls. of oil in eight hours, later flowed 23 bbls. of oil in one head and died.

Carter County

Samedan Oil Co. No. 17 Higgins A, NE NE NW section 7-2s-2w, Wildcat Jim area, Carter County, had broken oil sand at 1,688 feet, was bottomed at 2,550 feet, and pumped 47 bbls. of oil in 24 hours, cutting 20 per cent water.

Same company's No. 16 Higgins A, SE NW NE section 7-2s-2w, pumped 26 bbls. of oil in the first 24 hours and was completed at 2,502 feet, total depth.

Magnolia Petroleum Co. No. 75 Richards, NW SE NE section 6-4s-3w, Healdton field, had oil sand at 1,035 feet, total depth 1,148 feet, and pumped 22 bbls. of oil in 24 hours.

Same company's No. 15 Dawson, SE NE SE section 4-4s-3w, was completed at a 1-bbl. pumper after plugging back to 1,007 feet from 1,058 feet, total depth.

Kewanee Oil & Gas Co. No. 17 Willis, SW SE NE section 6-4s-3w, plugged back to 1,140 feet from 1,282 feet, total depth, and completed as a 7-bbl. pumper.

Pure Oil Co. No. 7 Collins, CNL SW NE section 16-4s-3w, an old well, plugged back from 1,356 feet to 1,328 feet, pumped 5 bbls. of oil daily and was recompleted. Kewanee Oil & Gas Co. No. 36 Jones, NW NE NE SW section 4-4s-3w, an old well, total depth 2,570 feet, was acidized, made potential of 147 bbls. of oil and was recompleted.

Three new tests in Carter County were reported. Samedan Oil Co. No. 18 Higgins A, SE NE NW section 7-2s-2w, was a location. Lesh Brothers No. 1 Carson, SW SW SE section 18-3s-2w, wildcat, was drilling at 175 feet. Kewanee Oil & Gas Co. No. 39 Jones, NW SW SE NW section 4-4s-3w, set 10-inch casing at 380 feet, total depth, and was waiting on cement.

Stephens County

Helmerich & Payne No. 1 Hefner, NE NE SW section 12-1n-5w, Doyle area, Stephens County, had Dees formation at 3,861-68 feet, total depth 3,920 feet, plugged back to 3,868 feet, was shot and flowed 34 bbls. of oil in 24 hours.

George L. Pace and others No. 14 Allen, SE SE NE section 3-2s-8w, was rigging up rotary.

Jefferson County

Farlyn Oil Co. completed three wells on its Seay lease in southern Jefferson County. The No. 52 Seay, SE SE SE SW section 3-7s-5w, was bottomed at 1,279 feet, shot at 1,240-63 feet, and pumped 105 bbls. of oil daily.

The No. 54 Seay, C SE SE SW section 3-7s-5w, had sand at 1,221 feet, total depth 1,267 feet, was shot and pumped 150 bbls. of oil daily.

The No. 55 Seay, SW SE SE SW section 3-7s-5w, had sandy shale and sand at 1,104 feet, total depth 1,119 feet, was shot and pumped 50 bbls. of 31-gravity oil daily.

New work in Jefferson County: Farlyn Oil Co. No. 56 Seay, No. 58 Seay and No. 59 Seay were locations, and No. 57 Seay was drilling at 1,025 feet. All are in section 3-7s-5w.

Grady County

Magnolia Petroleum Co. No. 8 Harrison, NW SE

(Continued on Page 103)

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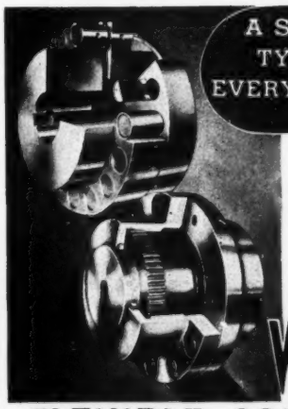

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Michigan Field Report

By
O. C. PRESSPRICH

1,000 BARREL WELL EAST OF WICKLUND, GLADWIN, FIELD

SAGINAW, Mich., Oct. 18.—Clamor over alleged price discrimination against Michigan crude oil all but drowned out excitement tne past week over a 1,000-bbl. oil strike in Hay Township, Gladwin County, about 1½ miles east of the Wicklund pool in Buckeye Township. The new well, showing its 1,000 bbls. a day after acid treatment, indicates good possibilities of development along another northwest-southeast strip parallel to the like trend through Buckeye Township.

The price discrimination cry, first raised weeks ago when Michigan crude prices were reduced 15 cents a barrel, got official recognition late in the week when the state conservation department took up cudgels in behalf of complaining independent producers. The commission called on Attorney-General Raymond W. Starr and other state officials to investigate the crude price situation with a view to determining the truth of the complaint that Michigan crude brings 15 cents a barrel less than the same markets are paying for other crudes of equal quality.

Hay Township—Gladwin

Buckeye lost the limelight, although maintaining a steady trend of favorable producers unmarred by dry holes on interior proved locations, as two other townships grabbed the glory, at least temporarily, though retaining it for Gladwin County.

Hay Township not only took the spotlight away from Buckeye, but with its big new producer, indicated a profitable extension of fertile territory to the east of Buckeye's north (Wicklund) pool. The cause of all the excitement—and it was just that among operators—was F. C. Stover No. 1 Knight in the SE NW SW section 16, Hay Township, which, after acid, showed 1,000 bbls. daily.

It was encouraging to operators, who have been viewing the Hay Township field as a prospective "dud." It also was significant because it extended the north Buckeye field to the eastward—but more than that because it indicated that the trend of development in Hay Township will be on a southeast slant from section 12 of Buckeye. This was proved by the fact that directly west about 4 miles from section 12 lies a dry hole, erecting a danger signal against much further eastward development from section 16 of Hay.

Petroleum Investors No. 1 Knight, NW NW SW section 16, added further to the possibility of Hay Township development with 150 bbls. natural production daily. It was scheduled for acid treatment. Both the Petroleum-Knight and Stover-Knight wells were reported to show structures running approximately 25 feet higher than in Stover No. 1 Bushing, two locations north and four east of his latest Knight well. The Stover-Bushing well was a dry hole.

In view of the present Hay Township directional trend, strengthened by a similar experience in Buckeye, geologists are convinced of a southeasterly-northwesterly direction of the oil bearing stratum, or more specifically two or more such strata running parallel and separated by ridges of nonoil-bearing rock, but with producing levels along the same directional path, crossing Buckeye and Hay townships diagonally.

As the Hay Township development indicated an eastward extension from the north Buckeye pool, a south extension of the south (Oard) pool loomed as Tobacco Township came through with a producer. It was Gladwin-Buckeye Corp. No. 1 Johnson, NE NW NW section 1, which came in at 150 bbls. natural production. It was scheduled for acid treatment.

North (Wicklund) Pool

Three edge tests were the major developments in the north pool the past week. American Drilling Co. No. 3 Solden, NW SW SE section 12, an easterly extension of the north pool, came in with 30 bbls. an hour after acid. It was one of the best producers in that section to date, though outdone by Charles W. Teater No. 2 Adamets, NW SW SW section 12, which showed more than 1,000 bbls. a day after acid. This well topped the Dundee at 3,542 feet, hit the pay streak at 3,596 feet and was completed at 3,630 feet. The other edge test producer was Mammoth Producing & Refining Co. No. 4 Manyet, NE NE SW section 3, which showed a hole full of oil and was being completed. Section 3 marks the present northwest boundary of the north pool.

South (Oard) Pool

Continuing the merging process of the so-called midway pool with the Oard pool, Voorhees Drilling Co. completed its No. 1-D Fritzwater, NW NE NE section 26, for a 325-bbl. natural producer. The well forms another connecting link between the pools. Smith Petroleum Co.-Beaver Trust No. 1 Wooding-Chovich, SW NW SE section 23, an eastern offset to Hanners Development Co. No. 2 Armstrong, developed a production of 150 bbls. after acid. Section 23 was the discovery section of the midway pool. Another well in the "tattle-tale" section, being cased the past week, was Bell & Marks No. 1 Armstrong, NE SE SW section 23. M. L. Jorganson No. 1 Foster, NE NE NW section 26 added another connecting link with a 30-bbl. an hour producer. The well is three-eighths of a mile east of the Voorhees-Fritzwater. Marshall Bauman No. 2 Nash, NW SW SE section 35, a southern boundary marker in the south pool, came in after acid with 600 bbls. production. Schilling & Schrot No. 3 Nash, SW NW SE section 35, was scheduled to be drilled in momentarily as the hole filled with 2,000 feet of oil at 3,572 feet in the Dundee pay. It topped the stratum at 3,512 feet. It was regarded as another highly promising producer.

Isabella County

Nottawa Township—focal point of interest for the oil industry for several weeks at the site of Boston Oil & Gas Co. No. 1 Clara Fox, NE NE NE section 23—again has come to life with further favorable indications. After arriving at the point where the well must either be completed or be listed for abandonment, operators drilled out the bridge left from a cement job earlier in the week. Six feet from the bottom, amid heavy gassing, the well was filling rapidly with oil. The corrected depth was given as 3,801 feet. Meanwhile Charles E. Weller No. 1 Cotter wildcat, NE NE NE section 11, 2 miles north of the Fox well, was completed as a dry hole. The Cotter ran about 30 feet lower than the Fox, with indications that formation farther south would be more favorable, as hinted by previous tests.

Midland County

Failure was written for Mammoth Producing & Refining Co. No. 1 Penny wildcat, 2 miles north of Coleman, when the well tapped Dundee water at a depth of 3,978 feet, when 144 feet into the stratum. It had been hoped that the well would find a pay stratum midway between the Beaverton pool proper and the Vernon-Chippewa-Greendale structure, and was one of the wildcat tests Mammoth is making in efforts to tap a new oil source in previously untried territory. The well was in the NW NW SW of section 9 of Warren Township. A second wildcat is now looked upon as a possible savior for Warren Township. It is F. M. Brown Trust No. 1 Andrews, NE NE NW section 27, about 2 miles due east of Coleman and a little more than 2 miles to the southeast of the failure recorded by Mammoth.

Allegan County

Three dry holes and one new producing well were recorded during the past week in Allegan County's new oil pool, with one good producer inciting further development and three failures checking exploration except toward the southeast. Largest of recent producers in this field is Muskegon Development Corp. No. 1 Hardy, SE SW SE section 16, Salem Township, where a 3,000-gallon acid bath developed an estimated 1,000-bbl. producer from the Traverse limestone. Dry holes recorded for the week include E. L. Andres Trust No. 1 Perrigo, SE NE NW section 28, Allegan Township; Lentz & Miller No. 1 Morgenstein, NW NW SW section 1, Hopkins Township, and J. V. Wicklund Development Co. No. 1 Winchester, NW SW NW section 13, Salem Township. All development in the Salem field now points toward the southeast.

Montcalm County

A dry hole was listed in Richland Township when Ide & Glavin No. 1 Britten, SE SE SW section 16, was posted for abandonment.

Few Michigan Wildcats

Proved or semiproved areas drew most of the past week's state conservation department permits for oil well drilling, wildcats being limited to one in each Allegan, Gratiot, Ottawa and Saginaw counties.

Twelve of the week's 21 permits, which pushed the 1937 total of such licenses into new high ground, were for Gladwin County, and 11 of these for Buckeye Township, already by far the state's richest oil producing area. There were three for proved or border territory in the Salem district of Allegan County and two for Arenac County, one in the Clayton field, which produces gas in the Traverse limestone and oil in the Dundee, and the other in the Adams Township field, where paying quantities of oil are being tapped in the Traverse stratum.

The Allegan County wildcat test is to be made in Monterey Township, which adjoins Salem. The Gratiot County test is in Arcadia Township, where Turner Petroleum Co. intends to try for either oil or gas. Gratiot County thus far has failed to show commercial quantities of oil, but has some gas production. The Saginaw County venture is to be made on the Rockwell farm in Swan Creek Township, and the Ottawa County test on the Henry Flagel lease in Polkton Township.

Pool Production in September

	Wells	Daily runs
Porter-Yost	434	9,539
Greendale-Chippewa	274	2,013
Geneva-Midland	4	29
Vernon-Leaton-Denver	98	1,710
Sherman-Isabella	41	6,477
Crystal-Montcalm	85	1,198
Home-Edmore	8	60
Winfield-Montcalm	2	5
Beaverton	25	297
Buckeye	227	24,734
Ogemaw	205	2,467
Arenac	34	3,773
Saginaw	56	21
Birch Run	25	82
Dundee-Monroe	3	27
Allegan	29	807
Muskegon	94	175
Total	1,644	53,414

Kentucky Hospitality

To meet the influx of oil scouts and land men into western Kentucky the Owensboro Hotel, Owensboro, Ky., has donated its large dining hall to provide a central meeting place. At a meeting of local operators, oil company scouts and visitors it was decided to accept this offer and file in this room maps and well records and provide a stenographer to copy records. A complete file of all publications issued by the Kentucky Geological Survey will be available. Owensboro men have contributed samples of sands and cores and every effort is being made to make this a central clearing house for western Kentucky operations.

Kansas Developments

By
DAL DALRYMPLE

OIL AREAS OPENED IN ELLIS, BARTON; EXTENDS HALSTEAD

Another wildcat in Barton County, Kansas, was near completion for a pool opener as operators waited for cement to set at James A. Brouk, John F. Duwe and National Refining Co. No. 1 Gory, NW NW SW section 10-17-13w, which had a hole full of oil from Siliceous lime at 3,343-48 feet, total depth. Five-inch casing was run to 3,343 feet. The wildcat is south of the Ainsworth pool and northeast of Hoisington.

The Halstead pool of Harvey County was extended one location west at E. J. Shaffer No. 2 Dreese, SW NE NE section 2-23-2w, with one of the larger Kansas producers of recent weeks. It flowed 370 bbls. of oil the first hour and flowed 911 bbls. in three hours from Chat at 2,962-93 feet, total depth. Production was natural. It was due for potential test and completion.

Earl Wakefield and others No. 1 Burnett, NW NW NE section 1-11-18w, wildcat northwest of the Bemis pool in Ellis County, made potential of 1,890 bbls. of oil daily from Siliceous lime at 3,570-75 feet, total depth.

The Welch pool, second oldest in western Kansas, has been relieved of proration restrictions by the Corporation Commission and was not included in the proration order for October. There are 31 Chat producers in the pool in Townships 20 and 21-6w, southeastern Rice County, with daily production of about 750 bbls. of oil. The area was opened in January, 1924, and to January 1, 1937, had produced 3,621,500 bbls. of 33-gravity oil.

Wildcat Completions

Atlantic Refining Co., Cities Service Co. and Skelly Oil Co. No. 1 Runyon, SW NW NE section 11-27-13w, wildcat north of Pratt City and southeast of Iuka in central Pratt County, was shot and acidized, flowed 151 bbls. of oil the first four hours, 66 bbls. the next four hours and gained potential rating of 397 bbls. of oil, with 18 per cent water. It had Simpson zone at 4,286-4,300 feet, topped Siliceous lime at 4,393 feet, was bottomed at 4,437 feet and plugged back to 4,300 feet to complete.

Stanolind Oil & Gas Co. No. 1 Hartsell, NW NW SW section 14-26-12w, Pratt County wildcat, topped Simpson series at 4,275 feet, Siliceous lime 4,374 feet, sulfur water intruded at 4,397-4,415 feet, total depth, and it was dry and abandoned.

Fred Rapp and others No. 1 Houghland, NW NW SE section 2-25-15e, wildcat in Woodson County, was dry and abandoned at 1,527 feet, total depth.

J. H. Lester No. 1 Methene, SE SE NE section 29-10-20w, Rooks County wildcat, found Siliceous lime at 3,900 feet, had a hole full of water at 3,930-35 feet, total depth, and was dry and abandoned.

L. E. Waldron No. 1 Neuschwanger, SE NE NW section 11-8-14w, wildcat in Osborne County, had spudded and was abandoned.

S. H. Vineard No. 1 Hughes, NE NE SE section 13-32-12, Chautauqua County wildcat, was abandoned at 426 feet, total depth.

Barton County

Completions of the week in Barton County included 10 oil wells and one wildcat failure.

In the Kraft pool, Shell Petroleum Co. No. 2 Krautwurst, NE NE NW section 10-17-11w, found Siliceous lime at 3,319 feet, total depth 3,340 feet, pumped 273 bbls. of oil the first four hours, 270 bbls. the next four hours and made potential of 1,622 bbls.

Gulf Oil Corp. No. 3 Sessler, C S half N half SW section 24-20-11w, in the Peter area, was acidized and pumped 312 bbls. of oil in the first four hours of potential test, 279 bbls. the next four hours and gained potential of 1,676 bbls. Top of Siliceous lime was 3,247 feet, total depth 3,259 feet.

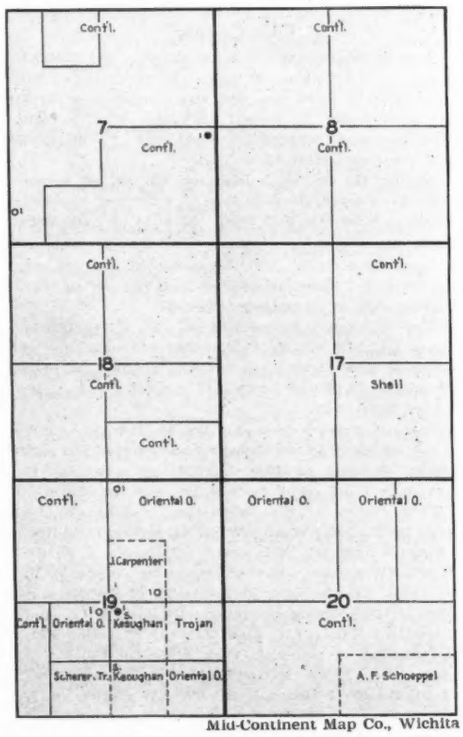
Indian Territory Illuminating Oil Co. No. 3 Sessler, SE SE SW section 24-20-11w, topped Siliceous lime at 3,247 feet, was bottomed at 3,265 feet, pumped 298 bbls. of oil in four hours, potential 1,691 bbls.

Magnolia Petroleum Co. No. 14 Roetzel, SW SW SE section 24-20-11w, had Siliceous lime at 3,249 feet, total depth 3,260 feet, pumped and flowed 75 bbls. of oil an hour and made potential of 1,080 bbls.

Stanolind Oil & Gas Co. No. 4 Panning, NW NW NE section 2-20-11w, west of the Silica field, had Siliceous lime at 3,288 feet, total depth 3,325 feet, was acidized and made potential of 173 bbls. of oil.

Stanolind Oil & Gas Co. No. 1 Zugg, NE NE NW section 35-16-13w, Stueder pool, was acidized and gained potential of 318 bbls. of oil. Top of Siliceous lime was 3,401 feet, total depth 3,415 feet.

Ohio Oil Co. No. 1 Stettinger, NE NW NE section 1-16-14w, Barton County sector of the Trapp field, found



Mid-Continent Map Co., Wichita

The second well in the Tenny area, Ness County, was near completion at Oriental Oil Co. No. 1 Tenny, NE NE SW section 19-18-25w

Siliceous lime at 3,285-91 feet, total depth, was acidized, pumped 72 bbls. of oil in the first hour and made potential of 1,184 bbls.

Cities Service Oil Co. No. 3 Bitter, SE NW NW section 5-16-13w, was acidized and made potential of 1,901 bbls. of oil from Siliceous lime at 3,329 feet, pay 3,334-37 feet, total depth.

Stanolind Oil & Gas Co. No. 1 Morrison B, SE SE NW section 26-16-13w, one-half mile north extension of the Stueder area, topped Siliceous lime at 3,399 feet and was completed at 3,403 feet, total depth. After acid treatment it made potential of 567 bbls. of oil.

Another Stueder pool completion was at Stanolind Oil & Gas Co. No. 1 Deal, NW NW NE section 35-16-13w. It had Siliceous lime at 3,399 feet, total depth 3,410 feet, was acidized and made potential of 886 bbls.

Armer & Vernon Oil & Gas Co. No. 1 Persons, SW SW SE section 7-17-13w, wildcat southwest of the Ainsworth pool, Barton County, topped Siliceous lime at 3,472 feet, had a stain of oil at 3,473-78 feet, four bbls. of water at 3,502-05 feet, total depth, and was abandoned.

The following new activity in Barton County was reported: Indian Territory Illuminating Oil Co. No. 6 Bryant, NE NE NW section 25-20-11w, rig; Magnolia Petroleum Co. No. 15 Roetzel, SE SW SE section 24-20-11w, spudded; Indian Territory Illuminating Oil Co. No. 4 Sessler, SW cor. section 24-20-11w, moving in rotary tools; Stanolind Oil & Gas Co. No. 7 Panning, SE NE NW section 11-20-11w, cellar; same company's No. 1 Thomas, SE SE SW section 35-19-11w, rig; same company's No. 3 Morrison A, SE SW SW section 27-16-13w, rig; Martin & Foraker No. 1 Dick Estate, NE SW SW section 31-19-11w, spudded; Shell Petroleum Corp. No. 1 D. Ehrlich, SW cor. section 1-16-14w, moving in material; same company's No. 1 J. Ehrlich, NE NE NW section 18-16-13w, building.

Russell County

Eight wells were completed and one wildcat location was reported abandoned in Russell County.

Coralena Oil Co. No. 5 Hank Sellens, NE NE NW section 30-15-13w, Trapp field, made potential of 2,735 bbls. of oil from Siliceous lime at 3,282-84 feet, total depth.

Same company's No. 1 William Sellens, SW SW SE section 19-15-13w, had Siliceous lime at 3,270-73 feet, total depth, pumped 75 bbls. of oil in one hour, was acidized and made potential of 2,652 bbls. of oil.

Cities Service Oil Co. No. 15 Boomhower, NW NE NE section 25-15-14w, made potential of 1,256 bbls. of oil after acidizing Siliceous lime at 3,319 feet, total depth 3,325 feet.

Darby Petroleum Corp. No. 5 Michaelis, SW SE SE section 36-15-14w, topped Siliceous lime at 3,295 feet, total depth 3,304 feet, was acidized and made potential of 2,085 bbls. of oil.

Texas Co. No. 1 Deines, SW SW NE section 19-13-14w, had Siliceous lime at 3,250 feet, pay 3,259-61 feet, total depth, was acidized and swabbed 384 bbls. of oil in 34 hours. It was reacidized, pumped 219 bbls. of oil in the first four hours and made potential of 1,276 bbls.

Mid-Continent Petroleum Corp. No. 2 Letsch, NW SW NW section 26-14-13w, pumped 222 bbls. of oil in the first four hours after acid treatment and gained potential of 1,077 bbls. Kansas City lime was topped at 2,891 feet, pay 2,922-31 feet, total depth 2,933 feet.

Cities Service Oil Co. No. 1 Miller D, NW NW SE section 31-14-13w, found Kansas City lime at 2,831 feet, was bottomed at 2,921 feet, acidized and pumped 269 bbls. of oil the first four hours, getting potential of 942 bbls.

J. C. Shaffer and others No. 2 Cram, NW NW SE section 11-14-15w, was acidized and made potential of 1,899 bbls. of oil from Kansas City lime pay at 3,050-58 feet, total depth.

Parks and associates No. 1 Gorham Estate, SW NW NE section 19-15-15w, wildcat was an abandoned location.

New work in Russell County: W. I. Southern, Inc., No. 11 Sellens Heirs, SW NE SW section 29-15-13w, rig; same operator's No. 2 Meharg, NW NE NE section 18-15-13w, building; Transwestern Oil Co. No. 2 Boomhower, SW SE SW section 19-15-13w, rig. J. C. Shaffer No. 3 Cram, SW NW SE section 11-14-15w, moving in material; Darby Petroleum Corp. No. 2 Dumler C, SW SW NE section 11-14-15w, location; Transwestern Oil Co. No. 8 Polcyn, SW SE SE section 10-14-15w, rig; same company's No. 10 Polcyn, SE NW SE section 10-14-15w, rigging up rotary; Polcyn No. 2 fee, SE SW SE

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section 10-14-15w, building; Stanolind Oil & Gas Co. No. 15 Baxter, SW NE SW section 32-15-13w, building.

Estimated Daily Production

Estimated daily production of Kansas for the week ending October 16 and for the preceding week was as follows:

	Barrels	
	Oct. 16	Oct. 9
Oxford City	1,375	1,400
Burrton	14,100	14,200
Ritz-Canton	4,825	4,850
Graber	2,850	2,825
Hollow-Nikkel	2,600	2,625
Lerado	1,875	2,300
Voshell	2,425	2,450
Wellington	3,175	3,225
Ellsworth County:		
Lorraine	4,185	3,625
Other pools	1,350	1,490
Rice-Barton counties:		
Bloomer	5,300	3,875
Chase	8,800	6,175
Geneseo	2,575	2,550
Raymond	1,675	1,300
Silica	17,650	13,225
Keesling	1,525	1,025
Hauschild	1,225	1,550
Miscellaneous Rice	8,740	9,035
Miscellaneous Barton	7,750	5,950
Russell County:		
Fairport	2,020	2,135
Gorham	1,760	2,005
Russell	2,275	1,610
Sullivan	7,745	7,340
Trapp	14,265	13,545
Miscellaneous Russell	7,860	7,620
Sedgwick County:		
Valley Center	1,050	1,070
Miscellaneous	2,840	2,705
Ellis County:		
Bemis	4,250	5,325
Miscellaneous	2,945	2,890
Kingman County	570	525
Stafford County	3,295	2,595
Greenwood County	9,925	9,950
Butler County	16,300	16,120
Other fields	20,600	21,090
Total Kansas	191,700	180,200

Ellis County

Deep Rock Oil Corp. No. 20 Baumer, SE NW NE section 17-11-17w, Kansas' biggest pumper, topped Siliceous lime at 3,516 feet and was completed at 3,530 feet, total depth. It pumped 1,148 bbls. of oil in eight hours and made potential of 3,430 bbls. The big well is in the Bemis field, Ellis County.

Margay Oil Co. No. 5 Johansen, SW SE SE section 22-11-17w, topped Siliceous lime at 3,388 feet, was bottomed at 3,395 feet and made potential of 2,506 bbls. of oil.

Lario Oil & Gas Co. No. 2 Romine, SW SW NW section 18-11-16w, made potential of 2,448 bbls. of oil from Siliceous lime at 2,448 feet.

J. A. Aylward and associates No. 3 Meis, NE NE NW section 6-12-17w, Shutts field, found Siliceous lime at 3,617 feet, total depth 3,646 feet, was acidized, pumped 330 bbls. of oil in four hours, and was rated potentially at 1,980 bbls. daily.

Transwestern Oil Co. and others No. 2 Solomon, SW SE SW section 28-11-19w, Solomon pool, topped Siliceous lime at 3,561 feet, total depth 3,571 feet, was acidized, showed for 1 bbl. of oil an hour but was abandoned.

First reports of new operations in Ellis County: Carter Oil Co. No. 1 Staab, SW SE NE section 11-12-18w, moving in material; Wolf Creek Oil Co. No. 3 Bemis, NE NE NW section 4-12-17w, rigging up rotary; T. M. Deal Oil & Gas Co. No. 2 Bemis-Deal, NW NW NE section 4-12-17w, rigging up rotary; Glimac Oil Co. and others No. 1 Kansas City Life, SE SW NW section 5-11-18w, moving in material; York State Oil Co. No. 2 Bemis, NW NE SW section 28-11-17w, location; Margay Oil Co. No. 1 Bemis E, SE SW NW section 28-11-17w, rig; Deep Rock Oil Corp. No. 23 Baumer, SE NE NE section 27-11-17w, drilling at 1,900 feet; same company's No. 24 Baumer, NE SW NE section 27-11-17w, location; same company's No. 25 Baumer, NW SE NE section 27-11-17w, location; same company's No. 26 Baumer, NE SE NE section 27-11-17w, location; Cities Service Oil Co. No. 1 Hall B, NW cor. section 26-11-17w, moving in material; Margay Oil Co. No. 6 Johansen, SE cor. section 22-11-17w, rig.

Rice County

Republic Natural Gas Co. No. 8 Wendell, SE NE SE section 32-19-10w, Silica field, Rice County, topped Siliceous lime at 3,274 feet, was bottomed at 3,281 feet, acidized, pumped 213 bbls. of oil in three hours, reacidized, pumped 472 bbls. of oil in the first four hours and had potential rating of 2,928 bbls.

Stanolind Oil & Gas Co. No. 8 Panning, SE SE NW section 33-19-10w, found Siliceous lime at 3,283 feet, total depth 3,301 feet, swabbed 20 bbls. of oil in two hours, was treated with acid, swabbed 150 bbls. of oil in two hours and made potential of 1,353 bbls.

Ohio Oil Co. No. 11 Proffitt, NW NE NW section 5-20-9w, Chase area, made potential of 419 bbls. of oil but did not increase production by acid treatment. It had Siliceous lime at 3,203 feet, total depth 3,216 feet.

Cities Service Oil Co. No. 4 Coldwater B, SW NW NW section 17-20-9w, had Siliceous lime at 3,318-31 feet, total depth, salt water intruded and it was abandoned.

Continental Oil Co. and others No. 4 Kimple, NW SE NW section 25-18-8w, an old well in the Geneseo area, was deepened from 3,201 feet to 3,230 feet, total depth, acidized, pumped 275 bbls. of oil in four hours, made potential of 1,603 bbls. and was recompleted.

New operations in Rice County: Lauck & Moncrief No. 3 Heter, NE NE SE section 1-21-8w, rigging up rotary; Douglass Oil & Gas Co. and others No. 14 Theede, SE NE NW section 9-21-7w, rig; Pryor & Lockhart No. 2 Hannekratt, NE NE SW section 8-21-7w, building; Atlantic Refining Co. No. 1 Patton E, NE NW SW section 5-21-7w, cellar; Rose Spring Drilling Co. No. 2 Mantel, SW NE NE section 18-20-10w, rigging up rotary; Continental Oil Co. No. 5 Kimple, SE NE NW section 25-18-8w, drilling; same company's No. 4 Kimple, NW SE NW section 25-18-8w, drilling.

Stafford County

Stanolind Oil & Gas Co. and others No. 3 Allen, NE NW SE section 31-22-11w, found Siliceous lime at 3,570 feet, total depth 3,609 feet, was acidized with 6,500 gallons and made potential of 83 bbls. of oil, with 30 per cent water.

First reports of new work in Stafford County: Stanolind Oil & Gas Co. No. 1 Shank, SE cor. section 17-24-13w, rigging up; same company's No. 1 Paulson, NE NE SW section 23-24-11w, rigging up rotary; Hannum Drilling Co. No. 1 Thole, NE cor. section 27-23-12w, rigging up rotary; same company's No. 1 Tiechman, SE cor. section 13-32-13w, building rig; Stanolind Oil & Gas Co. No. 13 Komarek, NW NE SE section 30-22-11w, rigging up; same company's No. 1 Siefkes, NW NW SE section 34-21-12w, location.

Ellsworth County

Skelly Oil Co. No. 1 Zink, SW cor. section 32-17-10w, Ellsworth County, topped Kansas City lime at 2,934 feet, had pay at 3,000 feet, total depth 3,018 feet, and flowed 257 bbls. of oil in seven hours, naturally. It was acidized and flowed 1,267 bbls. of oil in the first four hours and 1,359 bbls. the next four hours to gain potential rating of 7,604 bbls., and was classed as the largest flowing well in Kansas. Gas gauged 6,810,000 feet.

Rush County

Morgan & Flynn and associates No. 2 Schroeder, NW NW SE section 23-18-16w, Otis field, Rush County, flowed 328 bbls. of oil the first four hours, 286 bbls. the next four hours and made potential of 1,715 bbls. of oil, with 27,500,000 feet of gas. LaMotte sand was topped at 3,477 feet, total depth 3,552 feet.

Pawnee County

Stanolind Oil & Gas Co. and others No. 1 Belt, NE NE SW section 13-20-16w, Pawnee Rock area, northeastern Pawnee County and near the Barton County line, topped Siliceous lime at 3,764 feet and was bottomed at 3,827 feet. It flowed 68 bbls. of oil the first four hours, 73 bbls. the next four hours and was rated potentially at 410 bbls. daily. Gravity of the oil was 43.3 degrees. Bottom-hole pressure 1,195 pounds. It is the second well in the pool.

Sedgwick County

Prunty Production Co. and others No. 2 Black A, SW SW NE section 16-25-1e, Goodrich area, Sedgwick County, had Dolomite at 3,346-47 feet, total depth, was acidized and made potential of 973 bbls. of oil.

Continental Oil Co. No. 1 Oehlert, NW NW SE section 7-27-4w, was a location. Same company's No. 1 Hudson, SE SW NE section 12-26-1w, was drilling at 4,190 feet.

Harvey County

E. J. Shaffer and others No. 1 Haury, NE cor. section 14-23-2w, Harvey County, and Chat at 2,950 feet, and was dry and abandoned at 3,000 feet, total depth.

T. P. Henry and others No. 1 Morris, NW cor. section 32-23-3w, was a location; Olson Oil Co. No. 5 Schrag, NE NE SW section 30-23-13w, was a rig; T. P. Henry No. 1 Cevine, NW SW NE section 30-23-3w, had dug cellar.

Reno County

Stanolind Oil & Gas Co. No. 1 Mueller, SE SW NW section 19-24-4w, Burrton field, Reno County, topped Chat at 3,336 feet, total depth 3,390 feet, and

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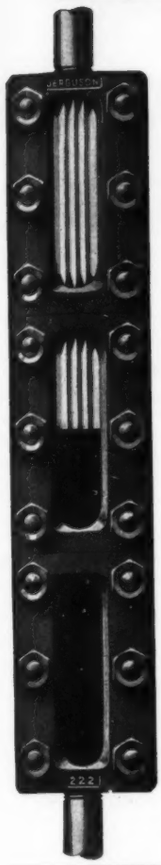

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swabbed 16 bbls. of oil an hour. It was acidized and made potential of 401 bbls. of oil, with 120 bbls. of water.

Inca Production Co. No. 2 Mueller, NE NE SW section 30-24-4w, was an abandoned location.

Magnolia Petroleum Co. and others No. 2 Thome, SE NE NE section 17-26-4w, Hilger pool, had Viola lime at 4,021-27 feet, total depth, was acidized and made potential of 1,312 bbls. of oil.

McPherson County

Western Kansas Oil & Refining Co. No. 1 Unruh B. NW NE SE section 31-19-1w, Ritz-Canton area, McPherson County, was plugged back from 2,995 feet, total depth, to 2,958 feet, and was dry and abandoned after a shot.

E. B. Shawver No. 2 Kaissen B, NW SE NW section 21-19-1w, was rigging up.

Marion County

Western Kansas Oil & Refining Co. No. 1-A Melcher, SW NW NW section 7-19-3e, Hillsboro area, Marion County, topped Chat at 2,420 feet, total depth 2,445 feet, produced 6,000,000 feet of gas and was completed.

Butler County

Saco Oil Co. No. 1-A Draper, NW SW SW section 27-25-5, El Dorado field, Butler County, had sand at 631 feet, total depth 649 feet and pumped 7 bbls. of oil and 10 bbls. of water daily.

Two new tests were reported in Butler County. Rex & Morris No. 1 Smith, C S half SE SW SW section 34-26-5, was drilling at 875 feet; Sheldon & Wixon No. 3 Dohren, SE SW NE section 11-25-3, was drilling at 1,700 feet.

Greenwood County

Hudkins and associates No. 3 Kolb, NW SE NE section 15-25-13, Greenwood County, had sand at 1,542-60 feet, total depth, plugged back to 1,543 feet, was shot and made potential of 50 bbls. of oil.

New work in Greenwood County: C. C. Whittaker No. 1 Arnold, C S half section 8-28-11, machine; Anderson & Reed No. 1 Errickson, NW NW SE section 17-24-13, location; Lyke and others No. 6 Beanchot, NW SW SE section 5-24-12, drilling below 1,000 feet; Superior Oil Co. No. 15 Jones, SE NE SW section 21-23-13, shut down at 422 feet.

Woodson County

Sinclair Prairie Oil Co. No. 13 McClaskey, NE NW NW section 29-23-14, Woodson County, topped Mississippi lime at 1,650 feet, total depth 1,700 feet, was acidized and pumped 15 bbls. of oil in 24 hours.

New activity in Woodson County: Chris Sheedy No. 9 Klick, SW SW SE SW section 20-25-14, drilling at 400 feet; Saco Oil Co. No. 7 Klick, SE SW SW section 20-25-14, machine; Young No. 1 Stevenson, C SE NW section 5-24-14, drilling at 900 feet; Aikman & Braden No. 3 Massey, C W half NW SE section 35-23-14, set 6-inch casing at 1,616; Pure Oil Co. No. 4 Dewey, SE NE NE NE section 1-24-13, drilling below 800 feet.

Elk County

Talbott & Hunter No. 1-A fee, NE NE SE section 29-28-12, Severy district, Elk County, topped Kansas City lime at 1,132 feet, pay 1,134 feet, total depth 1,138 feet, and pumped 15 bbls. of oil and 20 bbls. of water daily.

Denton & Morrow No. 9 Burke, NW SW SW section 34-29-10, was a machine.

Cowley County

E. B. Shawver No. 1 Baruth, SE SE SW section 5-34-3e, Cowley County, had a hole full of water at 3,344-53 feet, total depth, and was abandoned.

C. E. Roth and others No. 1 Wall, SE SE NE section 30-30-5, topped Siliceous lime at 3,380 feet, had a hole full of water at 3,400 feet, total depth, and was abandoned.

Chautauqua County

Shaffer & Howell No. 3 Landon & Floyd, NE SE SW section 23-32-10, topped Mississippi lime at 1,920 feet, total depth 1,958 feet, was acidized and pumped 12 bbls. of oil and 200 bbls. of water daily. It is in Chautauqua County.

New work in Chautauqua County: G. M. Smith and others No. 1 Henderson, SW cor. section 25-32-6, drilling below 770 feet; A. Brewer No. 1 Shepherd, NE NE SE section 20-32-4, moving in material; Hinze No. 2

(Continued on Page 103)

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East and East Central Texas

By
L. E. BREDBERG

GRAPELAND FIELD'S FOURTH TEST HIGH GRADE OIL WELL

DALLAS, Tex., Oct. 18.—The Grapeland structure, about 2 miles northwest of Grapeland in northern Houston County, and on the southern end of the East Texas Woodbine Basin, yielded a high gravity oil producer in its fourth test, drilled by the American Liberty Oil Co. on the J. A. Beans lands, in the William Burke Survey. This well is nearly one-half mile east of the nearest gas-distillate producer. The first three tests proved but gas-distillate producers from the Woodbine sand, the producing horizon in the area, but this new well made 80 bbls. of 48-gravity oil and 48 bbls. of salt water on the first 24-hour gauge, definitely proving an oil field lying in the area.

It logged the top of the Woodbine sand at 6,076 feet, and drilled to a total depth of 6,087 feet. The casing was perforated at 6,070 feet to test the saturated streak of sand. It produced the above amount of oil through a three-sixteenths inch tubing choke, making 67,000 feet of gas per day with the oil and water.

The finding of oil on the edge of the gas cap in the area will no doubt lead to other tests, and in case a field of consequence is proven a pipe line will be laid to connect with it, thereby giving the oil as well as the distillate producers an outlet. So far there has been no demand for the gas, and the company was contemplating erecting a casinghead gasoline plant to extract the gasoline from the gas in the wells. This new discovery may effect a change in those plans.

Dallas Test

A block of some 8,000 acres, assembled by A. Rex Putnam of Dallas, near Seagoville in the southeastern part of Dallas County, has been turned to the Plaza Oil Co. of Tyler for a test to drill to 3,500 or 4,000 feet. Several other tests have been drilled in the same area, but none of them went below 1,445 feet, with gas reported in all of them at around 1,440 feet. Part of the block extends into Kaufman County, along a northeast-southwest fault. H. C. Christian, member of the firm, will be in charge of drilling operations, which are to start the first week in November.

Wildcatting

Sherman Hunt and others No. 1 Dillard, in the H. Jeffries Survey, 9 miles southwest of Maban, in northwestern Henderson County, topped the Paluxy sand at 4,689-99 feet, and is drilling below 4,820 feet still in the sand. Elevation is 361 feet.

Tide Water Associated Oil Co., Seaboard Oil Corp. and Humble Oil & Refining Co. No. 2 McElreath & Suggett, located in the W. P. Wyche Survey, on the companies' Opelika structure and block in the northeastern corner of Henderson County, failed to get a successful test around 9,200-9,500 feet, and is plugging back to around 7,900 feet to test upper saturated streaks which had showings of oil. If these tests prove failures, plugging orders will no doubt be issued in the near future.

The three companies' No. 1 McElreath & Suggett is producing around 9 bbls. per day from sand logged at 7,185-95 feet, the well producing through drill stem and bit. Further testing of the block has been rumored, but nothing authentic has been given out by those holding leases in the area, where lease and royalty prices soared when the first showing was made in the No. 1 test. The No. 1 well is considered a "freak" but tests to the north or northeast may prove a field located in the area.

Glen Rose Logged

Humble Oil & Refining Co. and Gulf Oil Corp. interesting test on the E. Robertson lands, in the M. Mann Survey, on the east side of the Gregg County sector of the vast East Texas field, about 2½ miles southwest of Longview, topped the Glen Rose at 4,876 feet, and is drilling ahead around 5,630 feet.

This is the most interesting Trinity wildcat drilling in the entire district due to its location in regard to the East Texas field, and it is being closely watched, especially by all of those holding leases in that field and sector. Elevation is 272 feet.

It is believed that a test will be started in the near future on a wildcat block of some 13,000 acres in the Tatum area in the northeastern corner of Rusk County. The block has been seismographed by major company crews, and the contemplated test, which is expected to be located in the H. W. Smith Survey, will seek production in the Rodessa pay horizons in the Trinity. A previous test, to the south, was abandoned last spring around 6,000 feet.

The wildcat test 3 miles east of Ridgeway in Hopkins County, drilling by V. A. Hughes on the B. & T. Hardaway lands, and seeking production in the Trinity, logged Georgetown lime at 4,517 feet and is now drilling around 4,676 feet. It has an elevation of 579 feet, and is the only wildcat drilling in the county at the present time.

Only one wildcat location was made in the district this week. E. B. La Rue and others staked same on the Breedlove and Mills lands, J. M. Dunn Survey, 5 miles northwest of La Rue and in the eastern part of Henderson County. It is to be a Woodbine sand test.

EAST TEXAS COMPLETIONS

Gregg County

Arkansas Fuel Oil Co. No. 9-A Castleberry, 3,620-45 feet, 25 bbls. in three hours. Atlantic Refining Co. No. 83-A Judge, 3,506-3,642 feet, 68 bbls. per hour. F. H. E. Oil Co. No. 22 Christian, 3,603-35 feet, 21 bbls. in 20 minutes. Shell Petroleum Corp. No. 36 Moore, 3,548-57 feet, 30 bbls. in 30 minutes; No. 37 Moore, 3,550-55 feet, 20 bbls. in 30 minutes. E. L. Smith Oil Co. No. 5-A Taylor, 40 bbls. in 30 minutes. Stanolind Oil & Gas Co. No. 8 Jones, 3,623-93 feet, 59 bbls. per hour; No. 12 Lee, 3,608-33 feet, 55 bbls. per hour.

Sun Oil Co. No. 6-A Fuller, 3,679-3,706 feet, 24 bbls. in 30 minutes. Tide Water Associated Oil Co. No. 16 Tuttle, 3,519-44 feet, 10 bbls. in 10 minutes. General Crude Oil Co. No. 9 Howard, 3,525-30 feet, 60 bbls. per hour. S. E. Hindman No. 1 Dickson, 3,556-79 feet, 23 bbls. in 30 minutes. Jones & O'Brien No. 17 Hughey-Ross, 3,504-34 feet, 28 bbls. in 30 minutes. Magnolia Petroleum Co. No. 19 Griffin, 3,543-3,615 feet, 20 bbls. in four hours on pump. Roger Lacey No. 5 Prendergrast & Beal, 3,552-62 feet, 70 bbls. per hour. H. H. Terte No. 5 Benson, 3,603-05 feet, 60 bbls. per hour. Weaver Crim Corp. No. 11 Peterson, 3,595-3,625 feet, 24 bbls. in 20 minutes.

Rusk County

Atlantic Refining Co. No. 24 Brightwell, 3,578-3,705 feet, 75 bbls. per hour. Luling Oil & Gas Co. No. 9 Brightwell, 3,618-39 feet, 71 bbls. per hour. Magnolia Petroleum Co. No. 16 Still, 3,666-87 feet, 22 bbls. in 12 minutes. Oklahoma-Texas Oil Co. No. 1-A Leach, 3,505-35 feet, 100 bbls. in 24 hours on pump. Falcon Oil Co. No. 2 Newton, 3,698-3,721 feet, 75 bbls. in 10 hours on swab. G. B. R. Oil Co. No. 20 Harmon, 3,753-63 feet, 60 bbls. per hour; No. 14 Murphy, 3,741-55 feet, 40 bbls. per hour through three-fourths inch choke.

Humble Oil & Refining Co. No. 59 Blackwell, 3,649-50 feet, 72 bbls. per hour.; No. 11 Blackwell, 3,667-68 feet, 72 bbls. per hour; No. 14-B Holt, 3,741-64 feet, 75 bbls. per hour; No. 8-B Silvey, 3,690-3,710 feet, 80 bbls. per hour. Malernee & Bullock No. 7 Alford, 3,605-44 feet, 22 bbls. in 28 minutes. Sayre Oil Co. No. 7 Cansler, 3,710-30 feet, 80 bbls. per hour. Spandsco Oil Co. No. 12 Britt, 3,681-3,720 feet, 40 bbls. in 30 minutes. Turman Oil Co. No. 11 Dark, 3,693-3,766 feet, 80 bbls. per hour.

Smith County

Gulf Oil Corp. No. 15 Wiley, 3,695-3,705 feet, 10 bbls. per hour. Hunt Oil Co. No. 19-B Fair, 3,679-82 feet, 30 bbls. in 40 minutes. Magnolia Petroleum Co No. 20 Loosier, 3,710-20 feet, 24 bbls. in 15 minutes W. Schwanke No. 2 Roberson, dry and abandoned 3,816 feet, elevation 488 feet.

Upshur County

General American Oil Co. No. 13 Sheppard, 3,596-3,601 feet, 22 bbls. in 20 minutes. Humble Oil & Refining Co. No. 37 Smith, 3,629-3,701 feet, 54 bbls. per hour. P. H. Pewitt No. 4 Porter, 3,707-08 feet, 25 bbls. in 50 minutes. Rudco Oil & Gas Co. No. 3-A Nicholson, 3,683-89 feet, 23 bbls. in 40 minutes. Stanolind Oil & Gas Co. and others No. 17-A Flewellen, 3,661-70 feet, 27 bbls. per hour.

EAST CENTRAL TEXAS COMPLETIONS

Anderson County

Hunt Oil Co. No. 1 Beiler, 5,320-90 feet, estimated 115,000,000 feet of gas.

Franklin County

Grey & Wolfe No. 3 Bolin, 4,247-4,329 feet, 293 bbls. on pump. Humble Oil & Refining Co. No. 3 Prince, 4,220-4,313 feet, 286 bbls. on pump; No. 4 Wimms, 4,153-4,307 feet, 348 bbls. on pump. Stroube & Stroube No. 3 Heydrick, 4,248-90 feet, 651 bbls. on pump. The Texas Co. No. 6 Barker, 4,246-74 feet, 335 bbls. on pump. Werby & Tune No. 3 Sanders, 4,246-94 feet, 330 bbls. on pump.

Henderson County

O. M. Rector No. 2-A Loper, dry and abandoned 4,089½ feet, elevation 321 feet.

Houston County

American Liberty Oil Co. No. 2 Bean, 6,076-87 feet, 81 bbls. oil, 748 bbls. salt water per day through three-sixteenths inch choke, 67,000 feet of gas per day.

Titus County

Housh & Thompson No. 4 Carr, 4,150-4,300 feet, 298 bbls. on pump. Humble Oil & Refining Co. No. 11 Blackburn, 4,220-4,314 feet, 259 bbls. on pump; No. 6 Fry, 4,217-4,303 feet, 367 bbls. on pump. S. Smith and others No. 1 Thomas, 4,150-4,248 feet, 75 bbls. on pump. Tide Water Associated Oil Co. No. 11 Wilson, 4,220-77 feet, 243 bbls. on pump.

Eastern Fields

(Continued from Page 80)

ment has set. In No. 2 on this lease it is now drilling at 5,332 feet. These wells are in the Washington district. In Roane County, the Ohio Valley Gas Co., on the M. C. Larch and others farm in Harper district, is cementing at 5,055 feet. In Clay County, the Pittsburgh & West Virginia Gas Co. is drilling at 1,310 feet on the Jesse Chapman farm in Otter district. In Wood County, W. H. Bickel is down 2,500 feet on the Reese Blizzard farm in Tygart district. In Steel district, the Belmont Quadrangle is still fishing at 1,725 feet on its C. D. White lease. In Wirt County, Carnegie Natural Gas Co., on the W. C. Caplinger farm in Tucker district, is drilling at 2,424 feet. In Jackson County, W. H. Pettry is drilling at 3,480 feet on the D. O. Curry farm in Ravenswood district.

California Field Report

By L. P. STOCKMAN

UNION AND SUPERIOR BRING IN WILDCAT OIL PRODUCERS

LOS ANGELES, Calif., Oct. 18.—Wildcat exploration monopolized the spotlight in California during the past week as one of these tests, Superior Oil Co. No. 9-1 K.C.L., located a few miles southeast of the Greeley field, has been completed flowing 850 bbls. of clean 32-gravity oil and 350,000 feet of gas daily.

Another test, Union Oil Co. No. 1-34 K.C.L., northwest of the Greeley field, showed every promise of resulting in a discovery. Both wildcats are located on acreage leased from the Kern County Land Co., which owns in fee all of the present productive acreage in the Greeley and Ten Section fields.

Superior Oil Co.'s new well, located in section 3-30-26, which was bottomed in a gray sand at 7,874 feet, is believed to have discovered a new oil field in San Joaquin Basin but due to its proximity to the Greeley field this will remain conjectural pending additional development.

Superior cored 12 feet of oil sand in the interval at 7,550-7,605 feet and made its production test after landing a blank string of casing on bottom and then perforating opposite the productive interval. This 12 feet of oil sand had a terrific kick on a formation test made earlier in the week and indicated that there was a substantial accumulation in close proximity to the well.

Santa Maria Valley

The Santa Maria Valley district of Santa Barbara County was back in the limelight again this week due to discovery of a promising oil sand in E. H. Moore No. 2 Union Sugar in section 19-10-34 and the logging of the same oil zone in No. 2 LeRoy of Union Oil Co. in section 13-10-35. These two wildcats located about 2 miles west of the nearest oil pool in the west Santa Maria Valley field will greatly extend the limits of production if completed as commercial oil wells. Both wells appear almost assured of production and as a consequence E. H. Moore has staked four additional locations and Union Oil Co. has set casing in No. 2 LeRoy in addition to acquiring additional potentially productive acreage. In the past two years practically every acre has been leased between Santa Maria and the ocean front. Union Oil Co. has the largest holdings, close to 20,000 acres.

E. H. Moore No. 2 Union Sugar, bottomed at 5,101 feet, topped the Monterey at 4,822 feet and hit the top of the Franciscan basement, at 5,059 feet. A string of 8⅝-inch casing has been landed at 4,822 feet and a production test is scheduled to be made within another few days. Union Oil Co. No. 2 LeRoy which is bottomed at 5,334 feet is standing cemented as a string of 8⅝-inch casing has been landed at 5,035 feet. These two outposts, both of which show every promise of resulting in production, are the most important wells under way in the Santa Maria Valley field at the present time. Ohio Oil Co. has logged the Franciscan in No. 2 Moretti in section 21-10-34 at 4,060 feet and drilling operations were concluded at 4,081 feet. Top of the productive Monterey was logged at 3,912 feet which gives the well 148 feet of formation from which to produce. A string of 8⅝-inch casing has been landed at 3,915 feet and a production test is to be made during the forthcoming week. Drilling operations showed a substantial increase during the past week and new wells will be drilled by Bishop Oil Co., Fred E. Cole, Dugan Oil Co., George F. Getty, Inc., Frank Jones, A. N. Macrate, A. D. Mitchell, Signal Oil Co. and Union Oil Co.

Eight Very Deep Holes

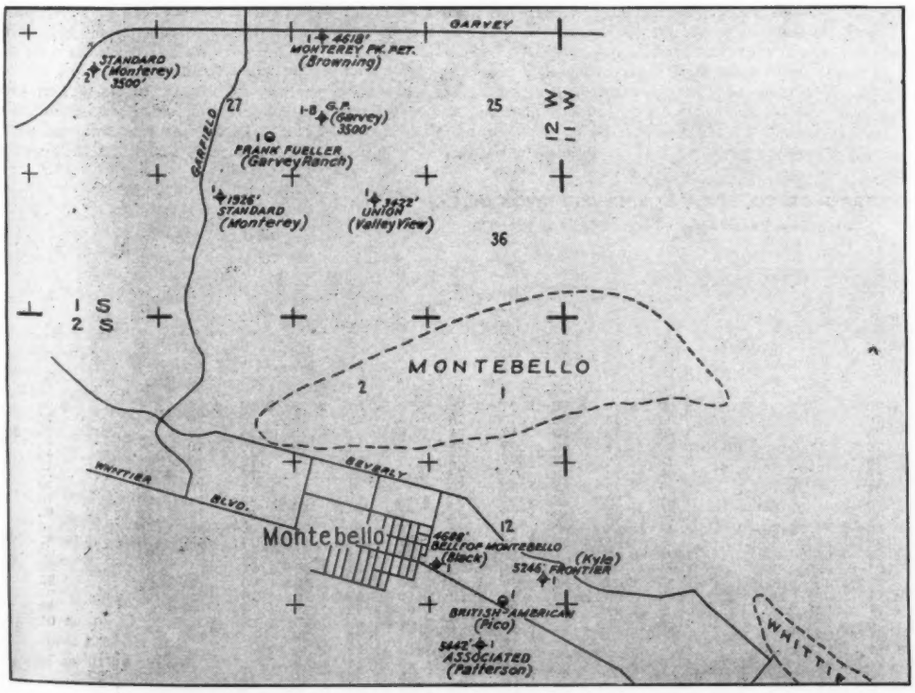
Eight California wells have passed the 10,000-foot depth and three of this group are below 11,000 feet. Those which have exceeded 11,000 feet include Union Oil Co. No. 1 K.C.L. at Rio Bravo in the pay at 11,285 feet, Continental Oil Co. No. 2-A Kern County Land at Wasco in a gray sand at 11,401 feet and Kettleman North Dome Association's well No. 4-18-J in the Kettleman North dome field down 11,423 feet in a barren gray sand. Other deep wells include Union Oil Co. No. 100 Bell in the Santa Fe Springs field at 10,789 feet, Tide Water Associated Oil Co. No. 137 Lloyd in the Ventura Avenue field at 10,060 feet, Continental Oil Co. No. 1 Kern County Land at Rosedale down 10,205 feet with a fish in the hole, Seaboard Oil

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	October 7		September 30			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic:						
Crude oil	.....	.....	61,750	8,821	129,788	.....
Diesel and gas oil	.....	.....	.....	.....	176,726	151,541
Gasoline	77,850	11,121	228,396	32,628	3,451,783	5,295,506
Kerosene	.....	.....	.....	.....	328,907	968,157
Foreign exports:						
Crude oil	297,434	42,491	740,810	105,687	11,554,561	7,300,713
Fuel oil	296,564	42,366	604,909	86,416	11,246,584	8,037,407
Diesel and gas oil	30,542	4,363	178,111	25,444	6,011,896	4,345,206
Gasoline	239,293	34,185	19,561	2,794	6,536,151	6,003,624
Kerosene	129,628	18,518	102,242	14,606	1,875,941	1,254,659
Lubricants	.....	.....	.....	.....	12,984	.....
Other unfinished oil	.....	.....	.....	.....	910,122	132,908
Coastwise-domestic:						
Crude oil	192,556	27,508	64,680	9,240	4,003,054	5,372,498
Fuel oil	464,811	66,402	200,879	28,697	12,102,301	7,975,114
Diesel and gas oil	22,575	3,225	44,012	6,287	1,790,729	903,218
Gasoline	357,618	51,088	319,524	45,647	12,161,393	9,697,354
Kerosene	.....	.....	4,506	644	313,125	138,814

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	.....	.....	.....	.....	152,932	.....
Gasoline	.....	.....	.....	.....	25,778	227,419
Kerosene	.....	.....	.....	.....	72,750	.....
Asphalt	.....	.....	.....	.....	351,394	267,431
Lubricants	.....	.....	.....	.....	25,522	43,543
Foreign exports:						
Crude oil	146,957	20,994	.....	.....	2,383,594	2,437,249
Fuel oil	.....	.....	123,722	17,675	1,737,346	2,127,245
Diesel and gas oil	.....	.....	.....	.....	2,457,484	1,444,652
Gasoline	98,783	14,112	108,672	15,525	4,198,617	2,830,830
Kerosene	8,921	1,274	.....	.....	787,814	546,419
Lubricants	956	137	.....	.....	456,753	268,440
Other unfinished oil	.....	.....	.....	.....	.....	90,923
Coastwise-domestic:						
Fuel oil	131,256	18,751	186,212	26,602	5,126,822	5,203,110
Diesel and gas oil	35,187	5,027	78,164	11,166	1,047,107	530,358
Gasoline	180,747	25,821	61,437	8,777	4,090,187	3,994,333
Kerosene	25,486	3,641	.....	.....	250,432	158,017



British American Oil Co. is starting a wildcat on a geophysical high in the Pico area between the Montebello and Whittier fields of Los Angeles Basin and Frank Fueller and T. R. Davis have started a wildcat north of Montebello on the Garvey ranch in an area that is regarded with considerable favor

Co. No. 1-C Kern County Land at Wasco suspended at 10,243 feet and Arkelo Petroleum Co. No. 1 in section 23-28-26 at Lerdo with mechanical trouble at 10,050 feet.

North Belridge

The Texas Co. is believed to have definitely extended the western limits of production in the North Belridge field of Kern County despite the fact that a production test will not be made for another few days. The company's No. 1 Martin in section 22-27-20 has been bottomed at 8,446 feet and finished with 613 feet of 5-inch liner after having cored in excess of 400 feet of oil sand in the Wagonwheel zone of Eocene age. Tide Water Associated Oil Co. and Belridge Oil Co. have already started offsets as the Texas Co. appears almost certain of completing an excellent flowing well. The Texas Co. has staked location for No. 2 Martin and this particular section of the field will become quite active during the next several months because in all probability Tide Water Associated Oil Co., Belridge Oil Co. and the Texas Co. will start additional wells on their respective properties if present wells correlate with Texas Co.'s outpost. No. 1 Martin was started soon after Temblor production was developed in the North Belridge field but was suspended for more than a year when it appeared off structure. Subsequent drilling resulted in discovery of Eocene production and the Texas Co. after checking all available data resumed work a few months ago and has climaxed the situation by coring over 400 feet of Wagonwheel sand. It is a little too early to appreciate the importance of this discovery except that even engineers of the Texas Co. were surprised to find 400 feet of oil sand so far out on the structure. This penetration is substantially more than several wells secured in the southeastern end of the field. During the current week Belridge Oil Co. successfully completed well No. 28-1 in section 1-28-20 flowing 2,410 bbls. of clean 33.1-gravity oil and 3,000,000 feet of natural gas per day from the Wagonwheel zone at 8,484 feet. This new well was finished with 493 feet of 4¾-inch liner including 452 feet of 250-mesh screen landed at 8,480 feet and 7,977 feet of 2½-inch tubing. As a result of the Texas Co.'s discovery in No. 1 Martin, Richfield Oil Corp. has just started work on a test in the southwest corner of section 22-27-20 and present plans call for the starting of drilling operations within 10 days.

Wilmington

The Long Beach Harbor Commissioners have passed the necessary legislation to permit development work to proceed in the Long Beach section of the Wilmington field, and the first derrick will be erected November 11 as the board has agreed to accept requests for permits prior to that date. Forms are being prepared and should be ready for distribution within a fortnight. General Petroleum Corp., discoverer of the Wilmington field, Union Pacific Railroad largest holder of undeveloped acreage, Superior Oil Co., Bankline Oil Co. and a number of other operators have completed plans for aggressive development and will begin making hole as soon as restrictions are lifted. The new ordinance restricts drilling operations to not more than one well to each acre and fixes a bond of $25,000 per well or a total of $200,000 for eight or more wells. This measure is one of the most rigid statutes ever enacted by any California municipality and among other things specifically provides that all derricks must be of steel construction and that a separate permit must be taken out for each well. The permit fee has been set at $750 in addition to an annual inspection fee of $150. Plans for development of city-owned lands in the harbor area were launched by the Harbor Commission and the city attorney directed to prepare a notice inviting bids for drilling. The first city well will be drilled on tidelands to pave the way for a Supreme Court decision on the state's claim to all tideland mineral rights. This decision will be of far reaching importance not only in this instance but also because it might affect the validity of contracts made at Huntington Beach and other similar areas as well as determining the status of the federal government with respect to tidelands.

Only two relatively small wells were completed in the Wilmington field in the past week but there are a number of wells nearing completion. The Caminol Co., Ltd., completed No. 1 Paye in the town lot area flowing 152 bbls. of 15.1-gravity oil daily from 3,600 feet, through a 24/64-inch bean and finished with 960 feet of 7-inch liner including 308 feet of perforated and was cemented through perforations at 3,291 feet. F. C. Hall No. 1 Villa Hall was brought in flowing 210 bbls. of 14.6-gravity oil per day through a 32/64-inch bean from 3,600 feet. The hole was finished with 639 feet of 6⅝-inch liner including 358 feet of perforated landed on bottom and was cemented through perforations at 3,242 feet. General Petroleum Corp. is starting an innovation in its development work in the Wilmington field by drilling two wells from the same location and using the same derrick. These two wells are No. 7 Terminal and No. 5-A Isco and both will be whipstocked to the desired point. General Petroleum Corp. has completed several oriented wells beneath the Ford Motor Co.'s assembly plant and still has several more to drill. The city of Long Beach has locations for 58 wells on city-owned property in the Long Beach section of the field with a possible 24 additional. Bankline Oil Co. has made 10 locations, General Petroleum Corp. has made four locations, Superior Oil Co. 15 and Union Pacific Railroad Co. four locations for new wells.

Gaviota

In the Point Concepcion-Gaviota district of Santa Barbara County, the 101 Oil Co. No. 1 Hollister in section 35-5-33 was swabbed in several days ago flowing 10,000,000 feet of natural gas and 200 bbls. of cold salt water along with a small quantity of crude oil per day from 3,206 feet. This production test was made from rocks of Vaqueros age logged at 3,132 feet but it will be another week or 10 days before the true importance of the well can be ascertained. Salt water was used in drilling the well and it may be this water that is showing up as the well appears to be cleaning up slowly. Tubing pressure is 300 pounds and casing pressure is holding steady at 1,200 pounds. This is the third well drilled in this general vicinity and each has shown considerable natural gas but very little oil. The crude recovered from No. 1 Hollister is of light refining grade and tests approximately 42 degrees. It is the present intention to allow the well to produce for several days in order to ascertain what it will do before reentering the hole for a Sespe test if this appears advisable.

El Segundo

Standard Oil Co. focused attention on the El Segundo field of Los Angeles Basin a few days ago by completing No. 2 Refinery flowing 5,000 bbls. per day of clean 25.3-gravity oil and 4,000,000 feet of natural gas from 7,417 feet. This new well is one of the largest completions registered in this field since its discovery by Republic Petroleum Corp. more than a year ago. The completion gives Standard Oil Co. two new wells within a period of a week for a total of 8,298 bbls. daily as No. 3 Refinery was brought in late last week flowing 3,298 bbls. daily. The company has already spudded in No. 4 Refinery and will begin making hole in No. 5 Refinery this week. Rig for No. 6 Refinery, between two large concrete lined reservoirs, is scheduled for completion within a few days. Ohio Oil Co. completed No. 7 Gough, flowing 510 bbls. of clean 27.1-gravity oil and 600,000 feet of natural gas per day from 7,240 feet. This well was finished with 195 feet of 5-inch liner including 168 feet of perforated landed at 7,238 feet. Richfield Oil Corp. has picked up an oil Conglomerate in No. 1 Howard at 7,449 feet and expects to have the well ready for a production test late this week.

Mountain View

In the Arvin section of the Mountain View field General Petroleum Corp. has cored 23 feet of good looking oil sand at 7,330-56 feet and a formation test resulted in a recovery of 700 feet of clean 31-gravity oil with the tester open 30 minutes. This well is No. 1 Houchin in section 27-31-29 and the outlook for production appears favorable. This is the second test drilled by General Petroleum in the Arvin area as No. 1 Arvin showed a potential of about 100 bbls. daily. These two wells are located about 2 miles southeast of production in the Mountain View field and consequently this work may result in the discovery of an entirely new field. The limited amount of data available makes it impossible to determine the relationship of each area. In the southeastern end of the Mountain View field in section 4-31-29 Mohawk Oil Co. completed No. 4 Earl Fruit, flowing 405 bbls. of relatively clean 26.5-gravity oil per day from 5,451 feet. This well was originally drilled to 5,778 feet and then suspended pending the drilling of No. 5 Earl Fruit. The latter well showed commercial production and indicated that No. 4 Earl Fruit was bottomed on the north side of a dominating fault. The hole was ac

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	....	....	....	$.80	$.76	$.76	$.77	$.78	....	....	$.70	$.70	$.70	....	....	$.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	....	.82	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	....	.85	.76	.78	.77	.78	....	$.70	.74	.74	.71	$.76	....	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	....	.88	.78	.82	.77	.80	....	.70	.78	.78	.72	.70	....	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	....	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	....	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	....	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	....	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	....	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	....	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	....	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	....	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	....	1.02	.95	....	.89	.99	.86	.88	1.01	.98	.90	.83	....	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	....	1.05	.98	....	.92	1.03	.90	.91	1.08	1.02	....	....	....	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	....	1.02	....	.96	1.06	.95	.95	1.10	1.06	....	....	....	.95	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	....	1.06	....	.99	1.10	.99	.99	1.15	1.10	....	....	....	.97	....
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	....	....	1.09	....	1.03	1.14	1.03	1.02	1.20	1.14	....	....	....	.99	....
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	....	....	....	1.07	1.17	1.06	1.06	1.25	1.18	....	....	....	1.01	....
31-31.9	....	....	....	....	1.24	Pipe	1.24	1.22	.97	Ship	....	....	....	1.11	1.21	1.12	1.09	1.29	....	....	....	....	....	....
32-32.9	....	....	....	....	1.27	Line	1.27	1.27	1.00	....	....	....	....	1.14	1.25	1.16	1.13	1.34	....	....	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.28	....	....	....	1.18	1.28	1.20	1.17	1.38	....	....	....	$1.19	....	....
34-34.9	....	....	....	....	....	....	....	1.37	....	1.32	....	....	....	1.22	1.32	1.25	1.20	....	....	....	....	1.23	....	....
35-35.9	....	....	....	....	....	....	....	1.42	....	1.35	....	....	....	1.25	....	1.29	....	....	....	....	....	1.27	....	....
36-36.9	....	....	....	....	....	....	....	1.46	....	1.39	....	....	....	1.29	....	1.33	....	....	....	....	....	1.31	....	....
37-37.9	....	....	....	....	....	....	....	1.51	....	1.43	....	....	....	1.32	....	1.37	....	....	....	....	....	1.35	....	....
38-38.9	....	....	....	....	....	....	....	1.56	....	....	....	....	....	1.36	....	1.42	....	....	....	....	....	1.39	....	....
39-39.9	....	....	....	....	....	....	....	1.61	....	....	....	....	....	1.40	....	....	....	....	....	....	....	1.43	....	....
40-40.9	....	....	....	....	....	....	....	1.66	....	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over.

cordingly whipstocked southward and redrilled to the completion depth, 5,451 feet.

Mount Poso

Dwight G. Vedder completed No. 2 B.N.B. in the new productive area north of the Mount Poso field in section 32-26-28. It was brought in pumping 418 bbls. of 16.5-gravity oil per day from 1,702 feet. Top of the productive Vedder was logged at 1,646 feet and the hole finished with 1,644 feet of 8⅝-inch casing and 103 feet of 6⅝-inch liner including 70 feet of 140-mesh screen. Several additional wells should be completed in this area within the next fortnight and locations staked indicate the probability that considerable additional drilling will be undertaken during the next several months. These shallow wells can be drilled from spud to completion in approximately two weeks at a cost of not to exceed $25,000. In the Midway-Sunset field, Richfield Oil Corp. has completed No. 13 Fellows, pumping 90 bbls. of clean 14.3-gravity oil daily from 1,500 feet. Mascot Oil Co., on property of which Standard Oil Co. drilled a deep test several years ago, is making preparations to resume production activities on its lease in the Hovey Hills following a shut down of approximately nine years. The property was not subject to drainage and the company allowed it to remain shut-in for the purpose of maintaining its reserve. At the same time the company plans to undertake additional drilling on the 160-acre Mascot lease of the Mount Diablo Oil, Mining & Development Co. where it has 45 wells producing about 12,000 bbls. monthly. This Mascot Oil Co. organized by the Spellacy Brothers, pioneer California operators, has maintained an enviable dividend record over a period of years and may some time in the future develop deep production.

Los Angeles Basin

In the Huntington Beach field, Wilshire Oil Co. has completed No. 6-A Huntington Beach pumping 376 bbls. of clean 24.6-gravity oil daily from 5,375 feet. This well replaces No. 6 H. B. which produced for several months and developed mechanical trouble. In the Long Beach field, the Texas Co. completed No. 3 Flowerstate pumping 35 bbls. of 24.8-gravity oil per day from 4,843 feet but the output at last reports was still cutting 20 per cent. No. 1 Haas of Richfield Oil Corp. in this field has been recompleted pumping 184 bbls. of 22.3-gravity oil daily after the hole had been cleaned out to bottom, 3,024 feet. In the Rosecrans field, Barnsdall Oil Co. has completed No. 17 O'Dea flowing 60 bbls. of wet 33.5-gravity oil per day from 6,762 feet after the hole had been plugged back from 7,079 feet. Production of this well may clean up, however, as it is still showing improvement. In the Dominguez field, Shell Oil Co. recompleted No. 49 Reyes in the upper zone but it was only good for 60 bbls. of 29.5-gravity oil daily from 4,890 feet. In the Ventura Avenue field, General Petroleum Corp. has completed No. 17 Barnard flowing 1,640 bbls. of 30.2-gravity oil and 1,350,000 feet of natural gas daily from 8,350 feet. Tide Water Associated Oil Co. No. 137 Lloyd, finished in the deep 57 zone at 10,060 feet, looks wet as it is flowing 500 bbls. of fluid, cutting 75 per cent, and does not appear to be cleaning up.

Kansas Fields

(Continued from Page 99)

Stuckey, SW NE SE NW section 12-23-14, moving in material; Sinclair Prairie Oil Co. No. 10 Winans, NE SW SW NE section 27-34-11, machine; same company's No. 22 Broadbeck, NW NE SW section 31-33-12, shut down at 1,150 feet; same company's No. 29 Fulton, SW SE SE section 20-33-12, drilling at 490 feet; same company's No. 10 Rodgers, SE cor. section 18-33-12, drilling below 800 feet.

Sumner County

Stelbar Oil Corp. No. 7 Frankum, C W half E half NE section 32-31-1w, Wellington pool, Sumner County, found Chat at 3,650 feet, total depth 3,696 feet, and made potential of 360 bbls. of oil.

Barber County

Barbara Oil Co. No. 2-15 Holmes A, C S half S half SE section 15-33-13w, Medicine Lodge area, Barber County, had Chat at 4,565-4,611 feet, total depth 4,912 feet, perforated casing and produced 6,000,000 feet of gas. Same company's No. 1 McKee, SE cor. section 21-33-13w, was a rig.

Grant County

Columbian Fuel Co. No. 1-8 Bass, C NW section 8-29-36w, Grant County, was bottomed at 2,722 feet, shot and produced 10,000,000 feet of gas, completed.

Panhandle Eastern Pipe Line Co. No. 1 Bank, C section 16-30-35w, was building a rig.

Stevens County

Kuhn Brothers No. 1 Nix, C SW section 2-34-39w, Hugoton area, Stevens County, was shot, produced 12,000,000 feet of gas and was completed at 2,698 feet, total depth.

Chase County

Smith & Polhamus No. 1 Leedy-Trees, C NE section 36-22-9e, Chase County, was drilling below 1,800 feet.

Oklahoma Fields

(Continued from Page 95)

NE section 28-3n-5w, Knox field, Grady County, had sand at 2,326 and 2,339 feet, total depth 2,414 feet, and pumped 10 bbls. of oil the first 24 hours, completed.

Carter Oil Co. No. 3 Hawkins, SW cor. section 5-3n-5w, was a location.

Jackson County

Gulf Oil Corp. No. 3 Southall, NW NW SW section 2-1n-20w, Altus pool, Jackson County, had Granite Wash at 1,529-39 feet, lime 1,662 feet, total depth 1,676 feet, plugged back to 1,543 feet and pumped 14 bbls. of oil daily.

Other New Work

In Okfuskee County, Mid-Continent Petroleum Corp. No. 1 Ireland, SW NE SW section 10-13-10, wildcat, was moving in tools.

In Caddo County, Wasteka Oil Co. No. 2 Griffin, SE NE SE section 27-6-10w, was a location.

In Comanche County, Guy Anderson No. 3 Price, SW NE NE section 30-2n-9w, an old well, was deepened from 2,033 feet to 2,090 feet, pumped 35 bbls. of oil daily and was recompleted.

In Cotton County, J. W. Amyx No. 1 Ash, SE cor. section 7-4s-10w, was a location for a wildcat test.

Southwest Texas Fields

(Continued from Page 81)

South Clara Driscoll is showing indications of extension. The second test to be drilled in the new area, and the first in several months, Sun Oil Co. No. 1 Flynn last week recovered 1,540 feet of oily gas cut mud consisting of 40 per cent oil, 450 feet of pipe line oil and 120 feet of salt water on a drill-stem test at 3,928-38 feet. Casing was set and perforated at 3,930-33 feet, and operators were swabbing at latest reports.

Bee County's New Pool

Bee County, which for the past several months has been relatively inactive, took the spotlight this week with a new field. The J. R. Dougherty No. 3 Hicks, located 3½ miles southwest of Normanna, in the J. M. Uranga grant, encountered a Hockley sand at 3,662-70 feet and this week was completed for an initial of 32 bbls. per day of pipe line oil on a one-quarter inch choke with tubing pressure of 120 pounds and casing pressure of 320 pounds.

The new field is located due south of the West Tuleta field, but differs from other Bee County pools in that its production is from the Hockley zone. The gravity of the crude approximates 40 degrees.

To the north of Bee County in Karnes County, a possibility of new production is seen in the Ivan W. Howard No. 1 Moczygemba, located 1¾ miles southwest of Falls City. The wildcat has reported sand at 2,106-11½ and 2,142-74 feet, with small recovery on coring yielding sand with an oil odor. The test is now shut down and casing will possibly be set for a test.

The Fault Line zone had several interesting tests this week. In Guadalupe County, Carver & Ellison No. 1 Rumpf, located 2½ miles southeast of the Darst Creek field, and 14 miles east of Seguin, topped the chalk at 2,582 feet and was bottomed at 2,585 feet in a showing of oil. It is reported running about 350 feet higher than other tests which were drilled in the vicinity.

To the south and west in Atascosa County, L. W. Steirens No. 1 Crawford in Survey 69, 2 miles west of Anchorage, has sand at 2,480-90 feet with a show of oil, and is setting casing to test for production.

Teas & Maryland Corp. No. 1 McKnight, in Dimmitt County, showed oil at 2,843-58 feet and was shut down awaiting orders after testing.

Gulf Coast Fields

(Continued from Page 86)

is bottomed at 8,129 feet with 7-inch casing cemented at 8,074 feet. The well is 500 feet due east of No. 6, a dry hole in section 12-18s-25e. Three wells have been completed in this field with production being found at 3,100, 4,500 and 5,700 feet.

In the Lafitte field, Jefferson Parish, Texas Co.'s attempt to find a deep sand below 12,000 feet has been retarded by mechanical trouble due to the drill becoming stuck at a total depth of 12,115 feet. Same company's No. 2 Madison Realty Co., section 20, is bottomed in oil sand at 10,120 feet and 7⅝-inch casing has been cemented on bottom.

In the Gibson field, Terrebonne Parish, Shell Petroleum Corp. has completed its third producer for the field when No. 2 Pelican flowed 934 bbls. of pipe line oil per day through a quarter-inch choke from a total depth of 9,465 feet. Perforations were made in the sand section at 9,468-95 feet. Location is in section 19-17s-15e. Same company's No. 3 Pelican is coring sand showing oil at 9,511 feet and will probably set casing for completion during the week.

In the North Crowley field, Acadia Parish, Humble Oil & Refining Co. is starting its second test, being No. 1 L. Laumbrecher, 703 feet south of the north line, 363 feet west of the east line of the NE quarter of SE quarter of section 4-9s-1e. The company's No. 1 Ohlenforst, northeast offset to the discovery well, is drilling in shale below 7,702 feet.

West Texas Fields

(Continued from Page 90)

bbls. water. B. C. Mann No. 1 Lyon Estate, dry and abandoned 3,000 feet, elevation 2,776 feet. McLean and others No. 1 Burleson, 2,189-2,272 feet, acidized, 117 bbls. on pump. Harve Nolan No. 1 Elder, 2,168-2,231 feet, acidized, 813 bbls. on pump. Glenn J. Smith No. 5 Burleson, 2,090-2,140 feet, acidized, 817 bbls. on pump. Texas Pacific Coal & Oil Co. No. 27-A Lane, 2,110-56 feet, acidized, 574 bbls. on pump.

Ward County

Bentley & Massie No. 1 Boogher, dry and abandoned 2,300 feet. Black & Hedrick No. 5 White, 2,194-2,220 feet, 76 bbls. F.H.E. Oil Co. No. 9 Green, 2,250-2,454 feet, shot, 246 bbls. Gulf Oil Corp. No. 48 Estes, 2,498-2,650 feet, shot, 1,523 bbls. Gulf Oil Corp. No. 49 Estes, 2,460-2,620 feet, 971 bbls. Hadlock & McFarlane No. 2 Allen, dry and abandoned 2,375 feet, elevation 2,442 feet. Humble Oil & Refining Co. No. 21 Richter, 2,830-2,930 feet, shot, 530 bbls. Standard Oil Co. of Texas No. 8 Adams, 2,460-3,000 feet, plugged back to 2,747 feet, 1,029 bbls. The Texas Co. No. 1-B University, dry and abandoned 3,072 feet, elevation 2,640 feet. Tide Water Associated No. 42 Johnson, 2,500-2,621 feet, 712 bbls. through three-fourths inch choke. Turman Oil Co. No. 6 Archenhold, 2,990-3,020 feet, acidized, 224 bbls. on pump.

Winkler County

Champlin & Bass No. 6 Hess, 3,030-77 feet, 3,128 bbls. Cities Service Oil Co. No. 1-F Daugherty, 2,900-3,065 feet, acidized, 2,152 bbls. Gulf Oil Corp. No. 87 O'Brien, 3,106-70 feet, shot, 94 bbls. on pump. Illinois Oil Co. No. 14-A Central State Bank of Abilene, 2,800-3,090 feet, shot, 677 bbls. K. D. Oil Co. No. 1 Mitchell, 4,461 feet, dry and abandoned, elevation 2,814 feet. Richardson Oils, Inc., No. 4 Humble-Walton, 3,220-3,430 feet, shot and acidized, 94 bbls. Stanolind Oil & Gas Co. No. 1 Cowden, 2,690-3,100 feet, shot, 167,000 feet of gas.

PANHANDLE DISTRICT

Carson County

McGill and others No. 7-A Cooper, 3,056-66 feet, shot, 629 bbls. on pump.

Dallam County

H. E. Seward No. 1 Wynne, dry and abandoned, 4,050 feet.

Gray County

C. E. Ash No. 6-B Morse, 2,651-85 feet, shot, 101 bbls. on pump. Cities Service No. 9-B Hughey, 3,235-95 feet, shot, 130 bbls. on pump; No. 10-B Hughey, 3,225-3,307 feet, shot, 568 bbls. on pump; No. 12 Culler, 3,153-3,285 feet, shot, 537 bbls. on pump. Drilling & Exploration Co. No. 5 Leopolds, 3,245-3,301 feet, shot, 282 bbls. on pump. Gulf Oil Corp. No. 9-A Faulkner, 2,827-2,921 feet, 357 bbls. on pump. I.T.I.O. No. 11 Smith, 3,158-3,275 feet, shot, 930 bbls. on

pump. Kewanee Oil & Gas Co. No. 13-H Morse, 2,611-2,710 feet, shot, 298 bbls. on pump.

King Oil Co. No. 2-A Baier, 3,200-84 feet, shot, 441 bbls. on pump. Magnolia Petroleum Co. No. 4 Catlin, 3,100-3,215 feet, shot, 702 bbls. on pump; No. 15 Harrah, 3,135-3,214 feet, shot, 292 bbls. on pump. Manston Oil Corp. No. 4 Sullivan, 3,105-75 feet, 559 bbls. on pump. Ochiltree Oil Co. No. 1 Saunders, 3,148-3,230 feet, shot, 655 bbls. on pump. Stanolind Oil & Gas Co. No. 13-C Cobb, 3,250-3,317 feet, shot, 116 bbls. on pump; No. 8 Culler, 3,164-3,320 feet, shot, 463 bbls. on pump. Stanolind and others No. 6 Holmes, 3,195-3,275 feet, 111 bbls. on pump; No. 3 Saunders, 2,957-3,075 feet, shot, 374 bbls. on pump. The Texas Co. No. 6 Patten, 2,865-3,035 feet, 628 bbls. on pump; No. 13 Davis, 2,764-2,845 feet, 267 bbls. on pump.

Moore County

Magnolia Petroleum Co. No. 5 Britain, 2,970-3,299 feet, 53,400,000 feet of gas. Phillips Petroleum Co. No. 1 Ansley, lost hole, 2,261 feet. Shell Petroleum Corp. and others No. 1 Kraker, 3,183-3,336 feet, shot, 17,300,000 feet of gas.

Hutchinson County

Alma Oil Co. No. 1 Davis, 2,943-47 feet, shot, 422 bbls. on pump. Amtex Petroleum Corp. No. 33 Lewis, 3,000-62 feet, shot, 425 bbls. on pump. Anderson and others No. 1 Thompson, 3,080-3,127 feet, shot, 197 bbls. on pump. Barnsdall Oil Co. No. 6 Lewis, 2,926-3,022 feet, shot, 1,064 bbls. on pump. Drilling & Exploration Co. No. 1 Luginbyhl, dry and abandoned 3,200 feet; No. 3 Pond, lost hole 2,480 feet; No. 12 Watkins, 2,870-2,996 feet, shot, 485 bbls. on pump. Martex Oil Co. No. 4-A Pitcher, 3,085-3,150 feet, shot, 559 bbls. on pump. Phillips Petroleum Co. No. 24 Cockrell, 2,965-3,054 feet, shot, 918 bbls. on pump; No. 4 Staples, 3,152-74 feet, shot, 666 bbls. on pump.

H. E. Rodgers No. 1-B Moore, 3,020-91 feet, shot, 408 bbls. on pump. Stanolind Oil & Gas Co. No. 13-A Watkins, 2,925-3,002 feet, shot, 385 bbls. on pump. Stanolind and others No. 4 Merchant, 2,852 feet, shot, 4,600,000 feet of gas. Stayton Oil Co. No. 4-C Moore, 3,145-3,211 feet, shot, 434 bbls. on pump. Stekoll Oil Producer No. 8 Dial-Perkins, 3,015-3,100 feet, shot, 367 bbls. on pump. The Texas Co. No. 8 Moore, 3,140-60 feet, shot, 528 bbls. on pump; No. 14 Lewis, 2,955-3,030 feet, shot, 560 bbls. on pump. Travelers Oil Co. No. 5-A Haile, 3,009-69 feet, shot, 605 bbls. on pump. Tripplehorn No. 7 Ware, 3,003-3,101 feet, shot, 523 bbls. on pump. Turman and others No. 14-A Whittenburg, 2,710-60 feet, shot, 730 bbls. on pump.

Wheeler County

Skelly Oil Co. No. 2 Cullum, 2,435-2,502 feet, 20 bbls.

CENTRAL TEXAS COMPLETIONS

Jack County

Hanlon-Buchanan, Inc., No. 1 Worthington, total depth 3,560 feet, dry and abandoned. Hill & Hill No. 7 Clayton B, 2,974-92 feet, 3,017-23 feet and 3,066-91 feet, 523 bbls. Long & Wolf No. 3 W. J. Smith, 2,931-67 feet, total depth 2,975 feet, 401 bbls. Mar-Tex Oil Co. No. 1 Clayton, 2,927-37 feet, 2,967-83 feet and 2,990-3,013 feet, 102 bbls. Nelson Oil Syndicate No. 1 Henderson, 2,782-97 feet, 151 bbls. Producers Development Co. No. 1 Sampley, 2,938-52 feet, 2,944-48 feet and 2,948-93 feet, 25 bbls. and 5,000,000 feet gas. Two Well Oil Corp. No. 3 Jones, 3,193-3,210 and 3,217-30 feet, 406 bbls. R. A. Westbrook No. 1 Worthington, total depth 3,685 feet, dry and abandoned. W. R. Worthington No. 8 Clayton, 2,961-92 feet. total depth 3,033 feet, 216 bbls.

Jones County

Will McKemie No. 1 Toombs, 2,471-75 feet, acidized, 350 bbls.

Palo Pinto County

Ernest Lloyd and others No. 1 Bailey, total depth 1,820 feet, dry and abandoned.

Shackelford County

Healey Drilling Co. No. 3 Ackers, total depth 3,943 feet, dry and abandoned. J. D. Meredith No. 1 Grimes. 1,204-12 feet, acidized, 5 bbls.

Stonewall County

General Crude Oil Co. No. 1 Bryan, total depth 4,372 feet, dry and abandoned.

Possible Discovery

One and one-half miles north of the nearest production in the south Vernon pool in Wilbarger County, the King Oil Co. has an apparent producer and discovery in the making in its No. 1 R. L. Castleberry, located in section 68, Block 14, H.&T.C. Survey. The test struck saturated sand at 2,180-83 feet, oil rising 400 feet in the hole in four hours. It was shut down to run and cement pipe at 2,175 feet. The hole was scheduled to go to 3,700 feet, but this showing was sufficient to warrant testing. It is a sand well in a lime producing area, and will result in more drilling for the new pay in case it makes a commercial producer.

Central West Fields

(Continued from Page 88)

No. 3 on John Layne land at mouth of Camp Branch of Levisa Fork and is setting machine for No. 559 on Samuel Dillion land on Dropping Lick Fork of Ivy Creek.

Kentucky-West Virginia Gas Co. is building rig for No. 534 on Jennie Caldwell land on Levisa Fork. Inland Gas Corp. is down 1,970 feet in No. 1 on the Ollie M. Glenn heirs land on Levisa Fork.

Martin County

The Kentucky-West Virginia Gas Co. was drilling at 1,240 feet, in slate and shells, in No. 5226, on C. W. Preece farm on Coldwater Fork in Martin County. The same firm is moving to location for No. 5230 and is building rig for No. 5231, both on the Preece farm.

Lawrence County

McKinster Brothers were drilling at 1,350 feet in No. 1 on the Mrs. E. G. McKinster land on Little Blaine, in the Busseyville district of Lawrence County. The Kentucky Oil Producers are below 550 feet in No. 1 on the John Rose land on Keaton in the Keaton district.

Magoffin County

A. V. Hoenig was drilling below 100 feet in No. 12 on the Paris Long land in the Wheelersburg district of Magoffin County.

Powell County

Mrs. Agatha Wireman No. 11 on the Winser heirs land, Tract No. 1, was drilling below 200 feet.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Oct. 15.—In the Taber field, southern Alberta, Plains Petroleum Corp. No. 2, LSD 11, section 25-9-17w4, got the top of the Clancey sand at 3,220 feet. With the hole about 6 inches in the sand, 18 bbls. of crude were bailed in about two hours, the oil rising 45 feet in the 8-inch hole. The 7-inch production string was run and the hole deepened slightly, after which production test was commenced. Storage tanks were already on the ground. Production was unofficially estimated between 100 and 300 bbls. a day, with the crude similar to that encountered in Plains No. 1 discovery well, though perhaps a little lighter.

Plains No. 1, LSD 14, section 29-9-17w4, got production in the Clancey sand at 3,204 feet but on deepening developed water intrusion. It has since been deepened to the Ellis sand at 3,310 feet and is waiting for a production test. No. 2, about 1,320 feet due south of No. 1, has so far developed no water intrusion. It was spudded in June, but work was held up for some weeks owing to a fire which destroyed the derrick, following the striking of a large pocket in the Bow Island sand. Plains No. 3, section 26-9-17w4, is repairing and cementing at 2,780 feet. Amerada Oils No. 1 is moving derrick timbers to location in LSD 13, section 19-9-16w4. Location is 1¾ miles southeast of Plains No. 2.

Turner Valley Producers

Recent completions on the west flank of Turner Valley have failed to hold up to the high figures of the early crude producers. Davies-Royalite No. 2, LSD 13, section 21-18-2w5, is still the largest producer in the field, making 1,350 to 1,400 bbls. a day on a 65 per cent proration basis. Among the recent completions, Brown Oil Corp. No. 1, LSD 14, section 16-18-2w5, the most southerly producer on the west flank, is making around 300 bbls. a day from the lime at 6,814 feet, with indications that production may increase. Brown No. 2, LSD 8, section 20-18-2w5, bottoming in the Madison lime at 7,002 feet, is making between 300 and 350 bbls. a day.

In section 29-18-2w5, Share Royalties No. 1, N half LSD 8, bottoming in the Madison at a reported depth of 7,309 feet and which started with a flush production estimated over 2,000 bbls. a day, dropped sharply, making around 500 bbls. a day through 6⅝-inch casing. With 2½-inch tubing installed it is expected to make up to 800 bbls. a day.

In the same section, Granville Oils No. 1, LSD 16, finished in the Madison lime at 7,321 feet, and made 160 bbls. in a six-hour test from the casing. The 2½-inch tubing has been run and after adjustments the well is expected to make better than 500 bbls. a day.

In section 28-18-2w6, Model-Spooner-Reward No. 1, LSD 4, finished 469 feet in the Madison at 6,930 feet depth. It unexpectedly blew into production with around 3,000,000 feet of gas, and flowed by heads for some time before settling down to a steady flow, gradually clearing itself of fluid. Production is a 46-gravity crude, and the well, producing from 6⅝-inch casing through the separator, is making around 600 bbls. a day. The flow may increase when the unusually porous formation is fully cleared of drilling fluid. The test was drilled jointly by Model Oils, Spooner Oils and Reward Oils on acreage of the Model company, with the British American Oil Co. holding an 8 per cent royalty interest. Location is immediately south of Foundation Royalties No. 1 and west of West Side Royalties No. 1, and nearly 2 miles south of Turner Valley Royalties No. 1 discovery well.

In west central Turney Valley, Mercury Oils No. 8, LSD 3, section 4-19-2w5, finished at 5,986 feet after getting the Madison at 5,500 feet, is gradually clearing itself of drilling fluid, and looks like a fair naphtha producer. Production is being piped to the Gas & Oil Products absorption plant and will not be subject to proration.

Tests in the Limestone

Seven other tests are drilling in the limestone, with two of them nearing completion. In section 28-18-2w5, Four Star Petroleums No. 1, LSD 13, got the Madison at 6,640 feet and is below 6,882 feet, with completion expected in a few days. In the southwest extension, Prairie Royalties No. 1, LSD 16, section 17-18-2w5, which got the Madison at 6,830 feet, is below 7,067 feet. It is the most westerly test in the southwest extension, and results will have an important bearing on new work in that direction.

In the same general area, Firestone Petroleums No. 1, LSD 13, section 16-18-2w5, immediately east of the Prairie well, got the lime contact at 6,345 feet and is preparing to resume after cementing at 6,368 feet. It got the lime 462 feet higher than the Prairie well, about a quarter mile farther west.

In section 32-18-2w5, Royal Crest Petroleums No. 1, LSD 9, got the lime at 6,626 feet and is deepening after cementing casing around 6,644 feet.

In section 29-18-2w5, Commoil No. 1, LSD 15, which got the Madison close to 7,000 feet is below 7,120 feet. National Petroleum Corp. No. 1, S half LSD 8, same section, got the lime at 6,786 feet and is installing cable tools to deepen from 6,805 feet where casing was cemented.

In section 28-18-2w5, Three Point Petroleums No. 1, LSD 12, is standing cemented at 6,570 feet after getting the lime contact at 6,562 feet.

West Side Drilling

In the West Central area, Brown Oil

(Continued on Page 115)

Summary of Operations, All Fields, September

SUMMARY OF ALL FIELDS

Wells Completed

	Comp.	Prod.	Dry	Gas
Penna. Grade	581	966	45	102
Central Ohio	118	476	43	47
Lima	3	0	0	3
Indiana	17	76	8	2
Illinois	72	15,337	18	0
Michigan	85	20,051	26	2
Eastern Kentucky	23	238	6	3
Western Kentucky	76	930	32	8
Kansas	278	108,145	67	14
Oklahoma	225	48,234	56	11
N. Cen. Texas	233	27,710	94	2
West Texas	232	148,683	29	0
Texas Panhandle	71	29,167	0	14
East Texas	211	9,700	7	0
E. Cen. Texas	67	12,838	9	0
East Texas (bor.)	20	3,821	7	0
Gulf Coast, Texas	143	69,295	22	3
Southwest Texas	260	21,755	72	6
North Louisiana	70	30,154	6	16
Gulf Coast, La.	35	9,993	13	1
Arkansas	10	4,006	4	0
Mississippi	1	0	0	1
Montana	24	820	5	4
Wyoming	15	5,476	6	2
Colorado	8	0	7	1
Utah	1	0	0	1
New Mexico	65	50,048	7	7
Total Sept.	2,944	617,919	589	250
Total Aug.	2,836	620,118	551	249
Difference	108	2,199	38	1

Rigs and Wells Drilling

Penna. Grade fields	94	560	654
Central Ohio	51	145	196
Lima	0	18	18
Indiana	0	39	39
Illinois	25	96	121
Michigan	26	172	198
Eastern Kentucky	5	34	39
Western Kentucky	0	48	48
Kansas	68	399	467
Oklahoma	37	390	427
North Central Texas	21	204	225
West Texas	98	423	521
Texas Panhandle	65	205	270
East Texas	89	112	201
East Central Texas	12	80	92
East Texas (border)	9	32	41
Gulf Coast Texas	36	154	190
Southwest Texas	79	208	287
North Louisiana	19	112	131
Gulf Coast Louisiana	13	94	107
Arkansas	18	51	69
Mississippi	7	13	20
Florida	0	4	4
Alabama	0	3	3
Montana	5	73	78
Wyoming	5	74	79
Colorado	1	39	40
Utah	0	9	9
New Mexico	14	153	167
Total Sept.	797	3,944	4,741
Total Aug.	817	4,110	4,927
Difference	20	166	186

OKLAHOMA

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Adair	0	0	0	0	1	1
Atoka	0	0	0	0	2	2
Beckham	2	0	1	0	2	2
Caddo	2	1,569	1	2	8	10
Carter	13	635	3	0	25	25
Cleveland	3	1,536	1	0	5	5
Coal	0	0	0	0	5	5
Comanche	2	2	1	0	2	2
Cotton	1	0	1	0	1	1
Creek	22	675	7	2	49	51
Garvin	3	437	0	1	8	9
Grady	0	0	0	1	5	6
Grant	1	756	0	1	1	2
Haskell	0	0	0	0	1	1
Hughes	12	505	7	1	11	12
Jackson	0	0	0	0	5	5
Jefferson	8	902	0	0	3	3
Johnston	0	0	0	0	2	2
Kay	1	0	1	1	3	4
Kiowa	1	2	0	0	3	3
Latimer	0	0	0	0	1	1
Lincoln	11	3,044	1	2	10	12
Logan	6	7,733	1	1	12	13
Le Flore	1	0	0	0	0	0
Love	0	0	0	0	1	1
Marshall	0	0	0	0	3	3
Murray	0	0	0	0	3	3
Muskogee	4	15	3	1	8	9
Noble	8	7,928	1	1	17	18
Okfuskee	5	93	1	1	9	10
Oklahoma	6	1,389	1	1	9	10
Okmulgee	12	899	4	2	30	32
Osage	20	1,135	5	5	27	32
Payne	2	71	1	0	0	0
Pittsburg	2	0	2	0	2	2
Pawnee	0	0	0	0	1	1
Pontotoc	29	12,316	2	8	49	57
Pottawatomie	8	847	3	1	14	15
Pushmatha	0	0	0	0	1	1
Seminole	21	2,177	5	2	27	29
Stephens	10	2,527	2	1	11	12
Texas	0	0	0	0	2	2
Tillman	1	506	0	0	3	3
Tulsa	8	535	1	2	6	8
Washita	0	0	0	0	2	2
Ttl. Sept.	225	48,234	56	37	390	427
Ttl. Aug.	206	42,294	58	48	418	466
Difference	19	5,940	2	11	28	39

Gas well completions: Beckham, 1; Creek, 2; Hughes, 1; Le Flore, 1; Okfuskee, 1; Okmulgee, 1; Seminole, 1; Stephens, 2; Tulsa, 1. Total 11.

KANSAS

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Barber	0	0	0	1	6	7
Barton	38	22,504	5	10	48	58
Butler	4	472	1	3	13	16
Chase	1	0	1	0	1	1
Chautauqua	9	182	3	2	15	17
Coffey	0	0	0	1	1	2
Cowley	14	1,670	4	1	12	13
Edwards	1	0	1	0	0	0
Elk	6	92	3	1	3	4
Ellis	38	26,836	4	8	38	46
Ellsworth	9	3,593	3	0	6	6
Grant	7	0	0	4	5	9
Greenwood	13	241	8	2	12	14
Hamilton	1	0	1	0	0	0
Harper	1	0	1	0	0	0
Harvey	4	3,678	0	1	4	5
Jackson	0	0	0	0	1	1
Kearny	0	0	0	0	1	1
Kingman	0	0	0	0	1	1
Lyon	1	45	0	0	0	0
Logan	0	0	0	0	1	1
Marion	1	0	1	0	5	5
McPherson	7	1,432	2	2	15	17
Meade	0	0	0	0	1	1
Mitchell	0	0	0	0	1	1
Ness	0	0	0	0	7	7
Osborne	0	0	0	0	2	2
Pawnee	0	0	0	0	1	1
Phillips	0	0	0	0	1	1
Pratt	0	0	0	0	3	3
Reno	11	2,744	4	3	14	17
Rice	32	13,812	7	7	47	54
Rooks	1	397	0	2	7	9
Rush	5	451	2	0	9	9
Russell	47	28,167	5	13	65	78
Scott	1	200	0	0	1	1
Sedgwick	3	0	3	0	11	11
Stafford	10	929	6	3	14	17
Stevens	4	0	0	2	3	5
Sumner	4	515	1	1	7	8
Trego	0	0	0	0	4	4
Woodson	5	185	1	1	13	14
Ttl. Sept.	278	108,145	67	68	399	467
Ttl. Aug.	227	118,035	47	62	410	472
Difference	51	9,890	20	6	11	5

Gas well completions: Chautauqua, 1; Grant, 7; Greenwood, 1; Rush, 1; Stevens, 4. Total 14.

EAST TEXAS

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Anderson	9	665	2	0	9	9
Angelina	2	5	1	2	0	2
Bowie	1	0	1	0	1	1
Cherokee	1	0	1	2	1	3
Ellis	1	0	1	0	1	1
Falls	1	0	1	0	1	1
Fannin	0	0	0	0	3	3
Franklin	14	3,889	0	3	12	15
Freestone	1	178	0	1	3	4
Gregg	109	5,884	0	37	45	82
Henderson	3	250	0	1	8	9
Hopkins	6	1,612	0	0	3	3
Houston	0	0	0	0	4	4
Hunt	0	0	0	0	1	1
Kaufman	0	0	0	0	1	1
Lamar	0	0	0	0	1	1
Leon	0	0	0	0	1	1
Limestone	0	0	0	0	1	2
Morris	1	0	1	0	2	3
Nacogdoches	0	0	0	0	0	0
Navarro	0	0	0	0	1	1
Red River	0	0	0	0	3	3
Rusk	0	0	0	0	1	1
Smith	66	2,885	5	39	36	75
Titus	19	558	1	3	6	9
Upshur	26	6,235	0	3	20	23
Van Zandt	16	373	0	8	24	32
Ttl. Sept.	278	22,538	16	101	192	293
Ttl. Aug.	264	30,543	8	108	195	303
Difference	14	8,005	8	7	3	10

Gas wells completed: None.

TEXAS GULF COAST

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Rigs	Dlg.	Ttl.
Amelia	13	7,399	0	2	11	13
Anahuac	5	3,352	0	0	4	4
Bay City	0	0	0	0	1	1
Barbers Hill	1	531	0	0	2	2
Big Hill	0	0	0	0	2	2
Buckeye	0	0	0	1	1	2
Clay Creek	1	0	1	0	1	1
Clinton	1	0	0	0	0	0
Cleveland	0	0	0	0	1	1
Cotton Lake	1	196	0	1	0	1
Dickinson	2	1,086	0	0	8	8
Edna	0	0	0	0	1	1
Esperson	2	193	1	1	0	1
Fairbanks	0	0	0	0	2	2
Fannett	0	0	0	0	1	1
Five Corners	0	0	0	0	2	2
Friendswood	3	1,594	0	1	2	3
Ganado	1	0	1	0	0	0
Greta	0	0	0	0	2	2
Goose Creek	0	0	0	0	1	1
Hardin	2	480	1	0	4	4
Hankamer	0	0	0	0	1	1
Hastings	30	15,440	1	3	24	27
Hawkinsville	1	0	1	0	0	0
Heyser	8	1,586	0	0	10	10
High Island	1	343	0	0	3	3
Hitchcock	1	209	0	0	2	2
Hull	4	2,001	0	2	1	3
Humble	0	0	0	0	1	1
Keeran	1	200	0	0	1	1
Labelle	0	0	0	0	1	1
Louise	0	0	0	1	0	1
Lockridge	3	1,013	0	2	3	5
Magnet	1	105	0	0	4	4
Manvel	3	914	1	1	1	2
McFaddin	1	192	0	0	1	1
Markham	1	310	0	0	0	0
Mykawa	0	0	0	0	1	1
Nome	2	498	0	1	2	3
North Cheek	0	0	0	0	1	1
Old Ocean	1	270	0	1	1	2
Orchard	0	0	0	0	2	2
Palacios	1	104	0	1	3	4
Pickett Ridge	1	0	1	1	0	1
Pierce Junc.	1	449	0	1	0	1
Placedo	1	1,232	0	1	1	2
Port Neches	1	0	1	1	1	2
Refugio	1	775	0	0	2	2
Sandy Point	1	103	0	1	1	2
Silsbee	3	787	0	0	2	2
Seabreeze	0	0	0	0	2	2
Segno	2	911	0	1	1	2
South Call	1	350	0	1	0	1
South Houston	2	604	0	0	1	1
Spindletop	1	266	0	0	1	1
Spurger	1	520	0	0	1	1
Telfener	1	0	1	0	1	1
Tomball	6	2,500	0	0	5	5
Turtle Bay	4	1,628	0	1	3	4
Quintana-Oconnor	9	19,587	0	3	6	9
Van Vleck	2	1,172	0	2	1	3
Withers	2	395	0	1	2	3
Miscellaneous	12	0	12	4	14	18
Ttl. Sept.	143	69,295	22	36	154	190
Ttl. Aug.	200	85,419	37	31	152	188
Difference	57	16,124	15	5	2	2

Gas wells completed: Clinton, 1; Silsbee, 1; Turtle Bay, 1; total, 3.

COASTAL LOUISIANA

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Rigs	Dlg.	Ttl.
Anse LaButte	0	0	0	0	1	1
Abbeville	0	0	0	0	1	1
Bayou Blue	0	0	0	1	1	2
Bay St. Elaine	0	0	0	0	1	1
Bayou Cocotriz	0	0	0	1	2	3
Bayou Des Allemands	0	0	0	0	1	1
Big Lake	1	100	0	0	2	2
Black Bayou	1	552	0	1	0	1
Caillou Island	2	1,804	0	0	1	1
Cameron Meadows	2	0	2	0	1	1
Charenton	1	240	0	0	4	4
Choctaw	0	0	0	0	2	2
Darrow	1	0	1	1	0	1
Dog Lake	0	0	0	0	2	2
Edgerly	0	0	0	0	1	1
Fausse Point	1	0	1	0	0	0
Four Isle	0	0	0	0	1	1
Gillis	2	0	1	0	3	3
Garden Island	1	852	0	0	1	1
Hackberry	4	563	2	2	5	7
Iowa	2	361	0	0	1	1
Jeanerette	0	0	0	0	2	2
Jennings	4	2,192	1	2	11	13
Lafitte	0	0	0	0	3	3
Lake Barre	0	0	0	0	1	1
Lake Hermitage	0	0	0	0	1	1
Lake Washington	0	0	0	0	1	1
Lake Long	0	0	0	0	1	1
Lake Pelto	0	0	0	0	1	1
Lockport	0	0	0	0	1	1
Leesville	1	64	0	0	1	1
North Crowley	1	679	0	0	0	0
New Iberia	1	222	0	0	7	7
Potash	4	25	3	0	2	2
South Roanoke	0	0	0	0	1	1
Roanoke	0	0	0	0	1	1
So. Jennings	0	0	0	0	1	1
Starks	0	0	0	0	2	2
St. Martinsville	1	0	1	0	1	1
Sulphur	1	921	0	0	3	3
Valentine	2	1,153	0	0	3	3
Venice	0	0	0	0	1	1
Villa Platte	1	265	0	0	0	0
White Castle	0	0	0	0	2	2
Miscellaneous	1	0	1	5	16	21
Ttl. Sept.	35	9,993	13	13	94	107
Ttl. Aug.	55	16,657	20	21	93	120
Difference	20	6,664	7	8	1	13

Gas wells completed: Gillis, 1.

WEST TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Andrews	4	1,631	1	2	12	14
Bailey	0	0	0	1	1	2
Brewster	0	0	0	0	3	3
Cochran	0	0	0	0	4	4
Coke	0	0	0	1	1	2
Crane	8	6,348	0	7	24	31
Crockett	2	287	1	1	1	2
Dawson	0	0	0	0	3	3
Ector	47	51,600	0	18	92	110
Edwards	0	0	0	0	1	1
El Paso	0	0	0	0	1	1
Fisher	6	4,400	1	6	8	14
Gaines	7	3,040	4	1	10	11
Glasscock	4	239	2	0	1	1
Hockley	0	0	0	1	1	2
Howard	10	9,436	0	11	25	36
Hudspeth	0	0	0	0	2	2
Jeff Davis	0	0	0	0	1	1
Jones	27	5,013	11	0	27	27
Loving	0	0	0	0	6	6
Martin	0	0	0	0	1	1
Mitchell	1	0	1	0	2	2
Nolan	0	0	0	0	1	1
Pecos	8	257	2	5	32	37
Presidio	0	0	0	0	1	1
Reagan	0	0	0	0	2	2
Reeves	1	0	1	0	1	1
Runnels	0	0	0	0	2	2
Schleicher	0	0	0	0	2	2
Scurry	0	0	0	0	3	3
Sterling	0	0	0	1	1	2
Stonewall	0	0	0	0	2	2
Sutton	0	0	0	0	1	1
Taylor	0	0	0	0	4	4
Terrell	0	0	0	0	1	1
Terry	0	0	0	0	2	2
Tom Green	0	0	0	1	1	2
Upton	33	14,851	3	13	37	50
Ward	28	16,196	1	19	51	70
Winkler	44	34,917	1	8	45	53
Yoakum	2	468	0	2	7	9
Ttl. Sept.	232	148,683	29	98	423	521
Ttl. Aug.	244	150,365	37	92	430	522
Difference	12	1,682	8	6	7	1

Gas wells completed, none.

CENTRAL AND NORTH TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Archer	28	900	15	2	9	11
Baylor	0	0	0	0	2	2
Brown	2	489	1	0	4	4
Callahan	4	37	2	0	6	6
Clay	9	252	5	1	4	5
Coleman	0	0	0	1	4	5
Collin	1	0	1	0	0	0
Comanche	0	0	0	0	2	2
Cooke	21	687	5	1	10	11
Denton	3	0	3	0	9	9
Eastland	2	0	2	0	3	3
Erath	1	90	0	0	1	1
Foard	1	0	1	0	2	2
Grayson	1	37	0	0	3	3
Haskell	0	0	0	0	1	1
Jack	37	9,940	4	5	38	43
McCulloch	0	0	0	0	2	2
Montague	10	322	2	0	7	7
Palo Pinto	0	0	0	0	4	4
Shackelford	17	836	8	0	7	7
Stephens	1	16	0	0	8	8
Throckmorton	0	0	0	0	1	1
Wichita	40	10,886	13	7	38	45
Wilbarger	11	805	6	0	15	15
Wise	0	0	0	0	2	2
Young	44	2,413	26	4	22	26
Ttl. Sept.	233	27,710	94	21	204	225
Ttl. Aug.	140	14,166	67	37	235	272
Difference	93	13,544	27	16	31	47

Gas wells completed: Montague, 1; Young, 1; total, 2.

TEXAS PANHANDLE

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Briscoe	0	0	0	0	1	1
Carson	8	3,841	0	2	13	15
Collingsworth	0	0	0	1	2	3
Dallam	0	0	0	0	1	1
Deaf Smith	0	0	0	0	1	1
Dickens	0	0	0	0	1	1
Gray	26	13,176	0	24	68	92
Hall	0	0	0	1	0	1
Hansford	0	0	0	0	1	1
Hartley	0	0	0	0	1	1
Hutchinson	27	12,150	0	29	84	113
Moore	9	0	0	4	20	24
Ochiltree	0	0	0	0	1	1
Roberts	0	0	0	0	2	2
Sherman	0	0	0	1	0	1
Wheeler	1	0	0	3	9	12
Ttl. Aug.	71	29,167	0	65	205	270
Ttl. July	72	28,609	1	62	184	246
Difference	1	558	1	3	21	24

Gas wells completed: Carson, 2; Gray, 1; Hutchinson, 1; Moore, 9; Wheeler, 1; total, 14.

SOUTHWEST TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Agua Dulce	1	15	0	0	4	4
Alta Mesa	1	75	0	0	3	3
Alta Verde	1	5	0	1	1	2
Alworth	1	0	1	0	0	0
Barbacoas	1	0	1	0	1	1
Benavides	24	3,405	0	3	17	20
Branyon	12	545	2	3	12	15
Buchanan	10	630	1	1	1	2
Byersville	1	1	0	0	0	0
Calliham	0	0	0	0	2	2
Carolina-Texas	0	0	0	0	1	1
Carroll	0	0	0	0	1	1
Charamousca	1	110	0	0	1	1
Clara Driscoll	1	95	0	0	1	1
Cole	0	0	0	0	2	2
Dale	0	0	0	0	2	2
Darst Crk.	4	880	1	2	2	4
Driscoll	0	0	0	0	1	1
Dunlap	3	210	1	2	0	2
Escobas	6	165	0	1	3	4
Ezzell	5	740	0	2	1	3
Flour Bluff	6	760	1	1	5	6
Ft. Merrill	0	0	0	0	1	1
Gas Ridge	0	0	0	0	1	1
Govt. Wells	1	30	0	0	0	0
Hoffman	8	500	0	0	2	2
Jacob	1	0	1	0	0	0
Kilam	9	455	0	1	2	3
Kohler	2	110	0	0	2	2
Labbe	4	120	0	0	1	1
La Blanca	0	0	0	0	4	4
Lamar	1	0	0	0	0	0
Larremore	0	0	0	1	1	2
La Sal Vieja	0	0	0	0	1	1
Loma Alta	1	0	1	1	0	1
London	0	0	0	1	0	1
Los Olmos	0	0	0	1	0	1
Luby	2	645	0	0	2	2
Luling	6	255	1	3	3	6
Lundell	1	30	0	0	1	1
Lytton Spgs.	0	0	0	2	0	2

Manda	0	0	0	0	1	1
Manford	2	20	1	0	0	0
McCampbell	10	1,915	0	3	14	17
Midway	3	315	0	2	1	3
N. Cedar Ck.	0	0	0	1	0	1
N. Pettus	1	45	0	0	1	1
O'Hern	1	100	0	0	1	1
Oilton	15	2,660	0	3	4	7
Palangana	1	0	1	0	0	0
Pearsall	2	480	0	1	1	2
Pettus	1	0	1	0	0	0
Piedra Lumbre	2	150	0	0	1	1
Plummer	2	240	0	0	0	0
Plymouth	1	190	0	0	4	4
Ricaby	3	95	2	2	3	5
Roma	1	5	0	0	0	0
Salt Flats	0	0	0	1	2	3
Samfordyce	1	170	0	0	0	0
Sandia	0	0	0	0	2	2
Sarnosa	1	90	0	0	2	2
Saxet	24	2,965	2	5	21	26
Saxet Hgts.	2	190	0	2	2	4
Seven Sisters	3	680	0	0	2	2
S. Burnell	6	1,365	0	2	1	3
S. Calliham	1	5	0	1	1	2
S. Clara Driscoll	0	0	0	0	1	1
Staples	1	0	1	0	1	1
Sullivan	0	0	0	0	1	1
Sweden	0	0	0	0	1	1
Taft	1	65	0	0	2	2
Taylor	2	5	1	0	0	0
Thomas-Lockhart	1	30	0	0	2	2
Von Ormy	1	4	0	0	0	0
W. Tuleta	1	30	0	0	1	1
Zoborosky	4	140	1	4	1	5
Miscel.	52	20	51	26	52	78
Ttl. Sept.	260	21,755	72	79	208	287
Ttl. Aug.	313	23,235	98	101	210	311
Difference	53	1,480	26	22	2	24

Gas wells completed: Benavides, 1; Hoffman, 1; Killam, 1; Labbe, 1; Lamar, 1; Oilton, 1. Total 6.

NORTH LOUISIANA

Summary of Field Operations

Parish:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bienville	1	0	0	0	2	2
Bossier	3	35	0	0	4	4
Caddo-Rodessa	8	2,054	0	1	8	9
Caddo-other	6	354	0	4	33	37
Claiborne	26	23,773	0	3	17	20
Concordia	0	0	0	0	2	2
DeSoto	1	0	1	0	3	3
Franklin	1	0	1	0	1	1
Jackson	0	0	0	0	1	1
LaSalle	0	0	0	2	2	4
Lincoln	5	3,409	0	0	9	9
Morehouse	3	0	0	1	1	2
Natchitoches	0	0	0	1	1	2
Ouachita	4	0	0	2	1	3
Red River	2	12	1	0	7	7
Sabine	2	0	2	2	4	6
Tensas	1	0	1	0	0	0
Union	6	0	0	3	1	4
Webster	1	517	0	0	13	13
W. Carroll	0	0	0	0	1	1
Winn	0	0	0	0	1	1
Ttl. Sept.	70	30,154	6	19	112	131
Ttl. Aug.	76	25,136	15	31	129	160
Difference	6	5,018	9	12	17	29

Gas wells completed: Caddo, 2 wells, 3,000,000 feet; Bienville, 1 well, 1,000,000 feet; Morehouse, 3 wells, 8,000,000 feet; Ouachita, 4 wells, 6,000,000 feet; Union, 6 wells, 59,000,000 feet. Total, 16 wells; 77,000,000 feet.

ARKANSAS

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Ashley	1	0	1	0	0	0
Calhoun	0	0	0	2	0	2
Clark	1	0	1	0	2	2
Columbia	0	0	0	1	3	4
Critterton	0	0	0	0	1	1
Cross	0	0	0	0	1	1
Drew	0	0	0	1	0	1
Hempstead	0	0	0	0	3	3
Lafayette	1	0	1	0	1	1
Lonoke	0	0	0	1	2	3
Miller	4	2,430	0	6	27	33
Nevada	0	0	0	4	3	7
Ouachita	0	0	0	0	3	3
Pulaski	0	0	0	0	1	1
Pike	0	0	0	0	1	1
Saline	0	0	0	0	1	1
Union	2	1,576	1	3	2	5
Ttl. Sept.	10	4,006	4	18	51	69
Ttl. Aug.	22	6,482	6	11	46	57
Difference	12	1,586	2	7	5	12

Gas wells completed: None.

EAST TEXAS (Border Counties)

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bowie	2	0	2	0	1	1
Cass-Rodessa	8	1,248	0	3	9	12
Harrison	2	0	2	0	1	1
Marion-Rodessa	4	2,551	0	4	12	16
Marion-other	4	22	3	0	3	3
Panola	0	0	0	1	4	5
Shelby	0	0	0	1	2	3
Ttl. Sept.	20	3,821	7	9	32	41
Ttl. Aug.	21	5,326	2	7	36	43
Difference	1	1,505	5	2	4	2

Gas wells completed: None.

MISSISSIPPI

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bolivar	0	0	0	0	2	2
Calhoun	0	0	0	0	1	1
Claiborne	0	0	0	1	1	2
Franklin	0	0	0	1	0	1
Grenada	0	0	0	1	0	1
Harrison	0	0	0	0	1	1
Hancock	0	0	0	0	1	1
Hinds	1	0	0	0	0	0
Jones	0	0	0	0	1	1
Kemper	0	0	0	0	1	1
Lamar	0	0	0	0	2	2
Pike	0	0	0	0	1	1
Simpson	0	0	0	1	0	1
Sunflower	0	0	0	1	0	1
Washington	0	0	0	0	1	1
Wilkinson	0	0	0	0	1	1
Yalobusha	0	0	0	1	1	2
Ttl. Sept.	1	0	0	7	13	20
Ttl. Aug.	6	0	6	6	13	19
Difference	5	0	6	1	0	1

Gas wells completed: Hinds, 1.

ALABAMA

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Choctaw	0	0	0	0	1	1
Green	0	0	0	0	1	1
Houston	0	0	0	0	1	1
Ttl. Sept.	0	0	0	0	3	3
Ttl. Aug.	0	0	0	0	3	3
Difference	0	0	0	0	0	0

FLORIDA

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Lake	0	0	0	0	2	2
Nassau	0	0	0	0	1	1
Suwannee	0	0	0	0	1	1
Ttl. Sept.	0	0	0	0	4	4
Ttl. Aug.	0	0	0	0	4	4
Difference	0	0	0	0	0	0

EASTERN KENTUCKY

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Knott	4	0	1	1	6	7
Martin	1	0	1	2	3	5
Floyd	0	0	0	0	3	3
Magoffin	1	0	1	2	5	7
Pike	0	0	0	0	1	1
Johnson	0	0	0	0	3	3
Powell	2	13	0	0	2	2
Lawrence	0	0	0	0	4	4
Lee	13	215	2	0	5	5
Wolfe	2	10	1	0	2	2
Ttl. Sept.	23	238	6	5	34	39
Ttl. Aug.	18	362	6	5	50	55
Difference	5	134	0	0	16	16

Gas wells completed: Knott, 3.

WESTERN KENTUCKY

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Brecken'ge	4	0	1	0	2	2
Butler	1	20	0	0	2	2
Caldwell	0	0	0	0	1	1
Crittenden	1	0	1	0	0	0
Daviess	7	30	4	0	7	7
Hancock	28	431	12	0	9	9
Henderson	2	30	0	0	2	2
McLean	5	240	1	0	4	4
Ohio	25	176	13	0	19	19
Union	0	0	0	0	1	1
Webster	3	3	0	0	1	1
Ttl. Sept.	76	930	32	0	48	48
Ttl. Aug.	99	1,183	43	0	36	36
Difference	23	253	11	0	12	12

Gas wells completed: Breckenridge, 3; Daviess, 1; Hancock, 2; Ohio, 2. Total 8.

ROCKY MOUNTAIN AREA

New Mexico

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Lea	53	48,030	2	11	95	106
Eddy	11	2,018	4	3	31	34
Chaves	0	0	0	0	2	2
Curry	0	0	0	0	1	1
Dona Ana	0	0	0	0	1	1
Roosevelt	0	0	0	0	1	1
Otero	0	0	0	0	2	2
Bernalillo	0	0	0	0	1	1
McKinley	0	0	0	0	4	4
Santa Fe	0	0	0	0	2	2
San Juan	1	0	1	0	5	5
San Miguel	0	0	0	0	3	3
Socorro	0	0	0	0	1	1
Torrance	0	0	0	0	1	1
Valencia	0	0	0	0	3	3
Ttl. Sept.	65	50,048	7	14	153	167
Ttl. Aug.	49	28,277	6	13	166	179
Difference	16	21,771	1	1	13	12

Gas wells completed: Lea, 6; Eddy, 1. Total 7.

Colorado

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Adams	0	0	0	0	2	2
Archuleta	3	0	3	1	4	5
Bent	1	0	1	0	0	0
Boulder	0	0	0	0	2	2
Eagle	1	0	1	0	0	0
Fremont	1	0	1	0	0	0
La Plata	0	0	0	0	3	3
Larimer	0	0	0	0	3	3
Lincoln	0	0	0	0	2	2
Mesa	0	0	0	0	2	2
Moffat	2	0	1	0	2	2
Park	0	0	0	0	3	3
Rio Blanco	0	0	0	0	4	4
Miscellaneous	0	0	0	0	12	12
Ttl. Sept.	8	0	7	1	39	40
Ttl. Aug.	2	60	0	0	44	44
Difference	6	60	7	1	5	6

Gas wells completed: Moffat, 1.

Wyoming

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Albany	1	360	0	0	5	5
Big Horn	2	313	1	0	6	6
Carbon	1	0	0	1	7	8
Converse	0	0	0	1	5	6
Fremont	1	0	1	0	5	5
Hot Springs	0	0	0	0	2	2
Johnson	1	0	1	0	0	0
Lincoln	0	0	0	0	4	4
Natrona	1	211	0	0	7	7
Niobrara	2	4,560	0	3	13	16
Park	0	0	0	0	3	3
Sweetwater	1	0	0	0	4	4
Subiet	1	12	0	0	1	1
Uinta	0	0	0	0	3	3
Washakie	2	20	1	0	0	0
Weston	2	0	2	0	7	7
Miscellaneous	0	0	0	0	2	2
Ttl. Sept.	15	5,476	6	5	74	79
Ttl. Aug.	13	739	5	14	71	85
Difference	2	4,737	1	9	3	6

Gas wells completed: Carbon, 1; Sweetwater, 1; total, 2.

Montana

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Big Horn	0	0	0	0	3	3
Carbon	0	0	0	1	5	6
Fergus	0	0	0	0	6	6
Glacier	9	482	1	3	12	15
Musselshell	1	0	1	0	0	0
Petroleum	0	0	0	0	2	2
Phillips	0	0	0	0	2	2
Pondera	0	0	0	1	1	2
Toole	14	338	3	0	26	26
Yellowstone	0	0	0	0	3	3
Miscellaneous	0	0	0	0	13	13
Ttl. Sept.	24	820	5	5	73	78
Ttl. Aug.	26	1,756	8	4	76	80
Difference	2	936	3	1	3	8

Gas wells completed: Glacier, 3; Toole, 1; total, 4.

Utah

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Daggett	1	0	0	0	1	1
Miscellaneous	0	0	0	0	8	8
Ttl. Sept.	1	0	0	0	9	9
Ttl. Aug.	0	0	0	0	9	9
Difference	1	0	0	0	0	0

Gas wells completed: Daggett, 1.

Nebraska

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Ttl. Sept.	0	0	0	0	7	7
Ttl. Aug.	0	0	0	0	7	7
Difference	0	0	0	0	0	0

PENNSYLVANIA GRADE FIELDS

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bradford	*222	185	0	12	123	135
Allegany	†130	80	0	6	63	69
N.Y.-Pa. gas	11	0	3	7	25	32
Venango-Clarion	‡31	21	3	1	25	26
Butler-Armstrong	7	21	2	4	12	16
S. W. Pa.	25	142	6	9	51	60
S. E. Ohio	60	425	17	16	61	77
W. Virginia	95	92	14	39	200	239
Ttl. Sept.	581	966	45	94	560	654
Ttl. Aug.	564	3,173	30	89	649	738
Difference	17	2,207	15	5	89	84

*Includes 79 water intake wells.
†Includes 50 water intake wells.
‡Includes 7 pressure wells.

Gas wells completed: N. Y.-Pa. gas field, 8; S. W. Pa., 14; S. E. Ohio, 16; West Virginia, 64. Total 102.

OHIO FIELD

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Ashland	4	24	1	3	3	6
Athens	9	8	4	4	10	14
Belmont	2	0	1	1	4	5
Coshocton	2	62	1	3	6	9
Cuyahoga	0	0	0	0	3	3
Fairfield	0	0	0	0	2	2
Guernsey	5	0	2	3	8	11
Huron	2	0	0	0	3	3
Holmes	6	0	4	1	1	2
Hocking	3	30	2	1	3	4
Knox	4	60	1	2	12	14
Lawrence	1	0	0	0	0	0
Licking	17	200	6	3	7	10
Lorain	3	0	2	3	3	6
Medina	2	8	1	0	2	2
Meigs	9	6	4	1	8	9
Morgan	3	2	1	0	7	7
Monroe	4	2	1	1	11	12
Muskingum	4	55	2	2	8	10
Noble	9	3	1	3	7	10
Perry	6	0	2	4	6	10
Richland	0	0	0	1	0	1
Scioto	1	0	1	0	0	0
Stark	5	0	1	4	8	12
Summit	1	0	0	3	1	4
Tuscarawas	2	0	1	2	10	12
Wayne	0	0	0	2	1	3
Washington	12	16	4	4	11	15
Vinton	1	0	0	0	0	0
Ttl. Sept.	118	476	43	51	145	196
Ttl. Aug.	103	1,042	32	38	118	156
Difference	15	566	11	13	27	40

Gas wells completed: Ashland, 2; Athens, 3; Belmont, 1; Fairfield, 1; Guernsey, 3; Huron, 2; Holmes, 2; Knox, 2; Lawrence, 1; Licking, 1; Lorain, 1; Meigs, 3; Morgan, 1; Monroe, 2; Muskingum, 1; Noble, 6; Perry, 4; Stark, 4; Summit, 1; Tuscarawas, 1; Washington, 4; Vinton, 1. Total 47.

INDIANA

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Crawford	0	0	0	0	2	2
Daviess	0	0	0	0	1	1
DeKalb	0	0	0	0	1	1
DuBois	1	0	1	0	0	0
Gibson	3	0	1	0	4	4
Greene	0	0	0	0	1	1
Harrison	1	0	1	0	1	1
Huntington	1	0	1	0	1	1
Jay	0	0	0	0	1	1
Knox	0	0	0	0	2	2
Lagrange	0	0	0	0	2	2
Perry	2	5	1	0	5	5
Pike	4	10	1	0	7	7
Porter	0	0	0	0	1	1
Posey	0	0	0	0	2	2
Spencer	2	5	1	0	1	1
Sullivan	1	0	1	0	2	2
Vanderburgh	1	6	0	0	0	0
Vigo	1	50	0	0	3	3
Wabash	0	0	0	0	1	1
Wells	0	0	0	0	1	1
Ttl. Sept.	17	76	8	0	39	39
Ttl. Aug.	7	101	1	0	32	32
Difference	10	25	7	0	7	7

Gas wells completed: Gibson, 2.

ILLINOIS

Summary of Field Operations

County:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bond	0	0	0	0	2	2
Clay	24	12,512	4	8	25	33
Clark	0	0	0	0	1	1
Christian	0	0	0	0	2	2
Edwards	0	0	0	0	1	1
Fayette	0	0	0	1	3	4
Richland	5	951	1	2	5	7
Randolph	0	0	0	0	1	1
Marion	36	1,824	7	3	22	25
Clinton	2	50	1	2	4	6
Wayne	3	0	3	3	2	5
Perry	1	0	1	0	0	0
Jefferson	0	0	0	2	1	3
Crawford	0	0	0	0	3	3
McDonough	0	0	0	0	1	1
Lawrence	0	0	0	0	2	2
Effingham	0	0	0	0	2	2
Massac	0	0	0	0	1	1
Coles	0	0	0	1	1	2
White	0	0	0	0	1	1
Washington	1	0	1	0	1	1
Hamilton	0	0	0	0	1	1
Jasper	0	0	0	2	1	3
Pope	0	0	0	0	1	1
Bureau	0	0	0	0	1	*1
DeKalb	0	0	0	0	2	*2
Greene	0	0	0	0	1	*1
Iroquois	0	0	0	0	1	*1
Kane	0	0	0	0	1	*1
Madison	0	0	0	0	1	*1
Rock Island	0	0	0	0	1	*1
Vermilion	0	0	0	0	1	1
Will	0	0	0	0	1	*1
Franklin	0	0	0	1	0	1
Cumberland	0	0	0	0	1	1
Hardin	0	0	0	0	1	*1
Ttl. Sept.	72	15,337	18	25	96	121
Ttl. Aug.	34	14,921	9	13	88	101
Difference	38	416	9	12	8	20

*Idle drilling wells.

MICHIGAN

Summary of Field Operations

Field:	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Beaverton	0	0	0	0	1	1
Buckeye	16	3,940	2	2	29	31
Clayton	3	805	1	3	9	12
Crystal	3	0	3	0	3	3
Currie	0	0	0	0	1	1
Curtice	1	123	0	0	1	1
Leaton	0	0	0	1	0	1
Mecosta	1	0	0	1	1	2
Mt. Pleasant	0	0	0	0	1	1
N. Gibson	2	673	0	2	0	2
Porter-Yost	2	118	0	1	4	5
Ravenna	1	0	0	0	0	0
Rosebush	0	0	0	0	1	1
Salem	7	3,335	0	2	9	11
Sherman	6	2,196	0	2	6	8
Trowbridge	1	19	0	1	1	2
W. Branch	8	303	0	3	14	17
Winegars	14	8,539	0	3	30	33
Wisner	2	0	2	0	1	1
Wildcats	18	0	18	5	60	65
Ttl. Sept.	85	20,051	26	26	172	198
Ttl. Aug.	79	21,180	17	24	179	203
Difference	6	1,129	9	2	7	5

Gas wells completed: Mecosta, 1; Ravenna, 1. Total 2.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location:	S.T.R.	Depth	Status
Hancock-Bush, No. 1-W Santa Maria, Santa Barbara	25-10-34	1,972	sd. sh. drlg.
Pet. Prop., Inc., No. 1-R Santa Maria, Santa Barbara	19-10-33	1,750	sd. sh. drlg.
Sed Oil, No. 1 Mills, Santa Maria, Santa Barbara Co.	27-10-34	4,426	sd. sh. drlg.
Linnell Oil, No. 1 Santa Maria, Santa Barbara Co.	23-10-34	1,761	sd. sh. drlg.
Moore, E. H., No. 2 Sugar, Santa Maria, Santa Barbara	19-10-34	5,055	gr. sh. drlg.
Ohio Oil, No. 2-M Santa Maria, Santa Barbara Co.	21-10-34	4,081	sd. sh. drlg.
Union Oil, No. 4 Vincent, Santa Maria, Santa Barbara	30-10-33	3,871	O.S. drlg.
Union Oil, No. 2 LeRoy, Santa Maria, Santa Barbara	24-10-35	5,334	sd. sh. drlg.
Union No. 17 Cal. Coast, Orcutt, Santa Barbara Co.	27- 9-34	195	sd. sh. drlg.
O'Donnell, J. E., No. 1 Santa Maria, Santa Barbara	21-10-34	3,061	sd. sh. drlg.
Pac. Western Oil, No. 3 Santa Maria, Santa Barbara	21-10-34	1,782	sd. sh. drlg.
Pac. Western Oil, No. 1 Santa Maria, Santa Barbara	27-10-34	3,775	sd. sh. drlg.
Rice Ranch Oil, No. 4 Orcutt, Santa Barbara Co.	23- 9-34	4,330	P.B. 3,732
101 Oil, No. 1 Pt. Concepcion, Santa Barbara Co.	35- 5-33	3,206	showed gas
Tide Water A. O., No. 1-L Santa Rita, Santa Barbara	3- 6-33	4,253	hd. sd. drlg.
Arnold Oil, No. 2 Careaga, Santa Barbara Co.	8- 8-33	6,373	test wet
Hancock Oil, No. 2 Los Alamos, Santa Barbara Co.	6- 7-32	6,530	dry; abd.
Field, O. C., No. 1-S.R., Lompoc, Santa Barbara Co.	11- 7-33	3,358	squeeze job
United Western Oil, No. 1 Los Olivos, Santa Barbara	15- 7-30	2,008	idle
Petroleum Securities, No. 6 Ranch, Shiells, Ventura	3- 3-19	4,140	sd. sh. drlg.
Texas Co., No. 133 Shiells, Ventura Co.	4- 3-19	4,128	cleaning out
Texas Co., No. 134 Shiells, Ventura Co.	4- 3-19	3,119	sd. sh. drlg.
Union Oil, No. 16 Bardsdale, Ventura Co.	12- 3-20	6,804	O.S. drlg.
Richfield Oil, No. 1 McFarland, Camarillo, Ventura	13- 2-21	4,631	hd. sh. drlg.
Condor Oil, No. 1 Sespe, Ventura Co.	6- 4-19	2,193	cleaning out
Ivers, H. A., No. 14 Star, Sespe, Ventura Co.	1- 4-20	1,502	cleaning out
Williamson Oil, No. 1 Sespe, Ventura Co.	1- 4-20	410	sd. sh. drlg.
Section 20 Oil, No. 1 Sespe, Ventura Co.	20- 5-19	427	sd. sh. drlg.
Speik Oil, No. 2 Sespe, Ventura Co.	33- 5-19	3,270	sd. sh. drlg.
Colima Oil, No. 2 Sespe, Ventura Co.	25- 5-19	3,430	sd. sh. drlg.
Topa Topa Oil, No. 3 Sespe, Ventura Co.	33- 5-19	4,407	sd. sh. drlg.
Commander Oil, No. 7-F Piru, Ventura Co.	13- 4-19	286	sd. sh. drlg.
Skyline Oil, No. 1-H Hopper Canyon, Ventura Co.	13- 4-18	1,565	sd. sh. drlg.
Vai, Giovani, No. 1 Ojai, Ventura Co.	4- 4-21	1,762	hd. sh. drlg.
Continental Oil, No. 8 Grubb, San Miguelito, Ventura	30- 3-23	2,371	sd. sh. drlg.
C. C. M. Oil, No. 2 Padre Canyon, Ventura Co.	23- 3-24	7,480	fish. D.P.
Continental Oil, No. 4 Padre Canyon, Ventura Co.	15- 3-24	5,265	sd. sh. drlg.
C. C. M. Oil Co., No. 16 Rincon, Ventura Co.	8- 3-24	4,600	sd. sh. drlg.
C. C. M. Oil, No. 17 Rincon, Ventura Co.	17- 3-24	3,725	O.S. drlg.
Oxnard Oil, No. 1 Oxnard, Ventura Co.	10- 1-22	6,302	P.B. 6,200
Rowe, W. G., No. 1 Johnson, Oxnard, Ventura Co.	15- 1-22	1,992	recmtd. 958
Vaca Oil, No. 2 Oxnard, Ventura Co.	6- 1-21	4,285	hd. sh. drlg.
Tide Water A. O., No. 28 V.L.W., Ventura, Ventura	26- 3-23	7,138	swabbing
Tide Water A. O., No. 30 Lloyd, Ventura, Ventura	27- 3-23	5,690	sd. sh. drlg.
Tide Water A. O., No. 63 Lloyd, Ventura, Ventura	27- 3-23	2,874	sd. sh. drlg.
Tide Water A. O., No. 137 Lloyd, Ventura, Ventura	27- 3-23	10,060	recmtd. 8,740
Tide Water A. O., No. 138 Lloyd, Ventura, Ventura	23- 3-23	1,571	sd. sh. drlg.
Tide Water A. O., No. 18 Hartman, Ventura, Ventura	22- 3-23	7,300	hd. sh. drlg.
Shell Oil, No. 90 Taylor, Ventura Avenue, Ventura	30- 3-23	6,805	O.S. drlg.
General Pet., No. 17 Barnard, Ventura, Ventura Co.	23- 3-23	8,350	O.S. drlg.
General Pet., No. 13 Notten, Ventura, Ventura Co.	28- 3-23	8,085	O.S. drlg.
Tide Water A. O., No. 11-B Lost Hills, Kern Co.	11-26-20	997	pump. 75 b.d.
Standard Oil, No. 5 United, Lost Hills, Kern Co.	2-26-20	1,167	cmtd. 1,167
Par-Mer Oil, No. 1 McKittrick, Kern Co.	6-31-22	681	sd. sh. drlg.
Michels, George, No. 1 Ynez, Temblor, Kern Co.	36-29-20	1,610	P.B. 435
Standard Oil, No. 2 Randolph, Semi-Tropic, Kern Co.	14-27-23	5,080	sd. sh. drlg.
Continental Oil, No. 2 Wasco, Kern Co.	8-27-24	11,280	br. sh. drlg.
Belridge Oil, No. 43-26 North Belridge, Kern Co.	26-27-20	7,300	br. sh. drlg.
Belridge Oil, No. 53-26 North Belridge, Kern Co.	26-27-20	8,052	br. sh. drlg.
Belridge Oil, No. 28-1 North Belridge, Kern Co.	1-28-20	8,484	flow. 2,390 b.d.
Belridge Oil, No. 27-8 North Belridge, Kern Co.	27-27-20	3,731	will deepen
Tide Water A. O., No. 7 North Belridge, Kern Co.	34-27-20	2,387	sd. sh. drlg.
Texas Co., No. 1 Martin, North Belridge, Kern Co.	22-27-20	8,364	O.S. drlg.
General Pet., No. 1 St. Helens, Belridge, Kern Co.	12-28-20	1,997	sd. sh. drlg.
Honolulu Oil, No. 23 Round Mountain, Kern Co.	20-28-29	1,904	sd. sh. drlg.
Honolulu Oil, No. 75 Round Mountain, Kern Co.	18-28-29	1,650	sd. sh. drlg.
Tampico Pet., No. 3 Round Mountain, Kern Co.	17-28-29	1,867	pump. 450 b.d.
Link Trucking, No. 1 Round Mountain, Kern Co.	30-28-29	1,695	resume work
Cal-Western Oil, No. 6 C.C., Round Mountain, Kern	12-28-28	1,810	sd. sh. drlg.
Malone, F. H., No. 3 Mabry, Kern Front, Kern Co.	4-28-27	2,290	gr. sd. drlg.
Martin, J., No. 2 Kern Front, Kern Co.	17-28-27	2,917	O.S. drlg.
California Star Oil, No. 3-80 Kern Front, Kern Co.	22-28-27	2,755	cmtd. 2,410
Texas Co., No. 11 Lehman, Kern Front, Kern Co.	23-28-27	186	sd. sh. drlg.
Republic Pet., No. 3 Cal. Tech., Kern Front, Kern Co.	24-28-27	1,868	cmtd. 1,678
Vedder, D. G., No. 2 B.N.B., Mount Poso, Kern Co.	32-26-28	1,703	O.S. drlg.
Ring Oil, No. 2 Shapiro, Mount Poso, Kern Co.	32-26-28	1,539	sd. sh. drlg.
Ring Oil, No. 29-4 Bowles, Mount Poso, Kern Co.	29-26-28	1,744	rig to pump
Sunset Oil, No. 3 Bowles, Mount Poso, Kern Co.	21-26-28	1,592	pump. 50 b.d.
Sunset Oil, No. 4 Vedder, Mount Poso, Kern Co.	28-26-28	1,510	O.S. drlg.
Vedder Pet., No. 29-2 Lambert, Mount Poso, Kern Co.	29-26-28	1,806	water witch
Bargol Oil, No. 3 Newhope, Mount Poso, Kern Co.	11-27-27	1,184	resume work
Framac Oil, No. 1 Brown, Mount Poso, Kern Co.	22-27-27	1,351	fish. D.P.
Desert Glow Oil, No. 2 Mount Poso, Kern Co.	14-27-27	1,232	rig to pump
Baker, H. W., No. 2 Mount Poso, Kern Co.	28-27-27	2,012	idle
Union Oil, No. 2-B Tribe, Mount Poso, Kern Co.	28-27-28	1,939	sd. sh. drlg.
Vanguard Oil, No. 9 Baker, Mount Poso, Kern Co.	33-27-28	1,651	sd. sh. drlg.
Meridian Oil, No. 6 Turner, Fruitvale, Kern Co.	23-29-27	3,075	O.S. drlg.
Simmel, L. C., No. 2 Fruitvale, Kern Co.	23-29-27	3,340	deepening
Western Gulf Oil, No. 9 Red Ribbon, Fruitvale, Kern	27-29-27	3,509	O.S. drlg.
Western Gulf Oil, No. 28 K.C.L., Fruitvale, Kern Co.	14-29-27	3,197	sd. sh. drlg.
Sandy Oil, No. 2 Fruitvale, Kern Co.	26-29-27	3,497	tested wet
Section Six Oil, No. 1 Mountain View, Kern Co.	6-31-29	5,825	gr. sd. drlg.
Mohawk Pet., No. 4 Fruit, Mountain View, Kern Co.	4-31-29	5,778	redrlg. 5,450
Ohio Oil, No. 6 Derby, Mountain View, Kern Co.	33-30-29	5,192	O.S. drlg.
Hogan Pet., No. 5 Symons, Mountain View, Kern Co.	4-31-29	5,189	sd. sh. drlg.
Hogan Pet., No. 4 Bankline, Mountain View, Kern Co.	4-31-29	3,994	sd. sh. drlg.
Hogan Pet., No. 9 Wharton, Mountain View, Kern Co.	32-30-29	6,132	sd. sh. drlg.
North Amer. Consd., No. 2-T Mountain View, Kern	9-31-29	1,694	sd. sh. drlg.
Petrol Prod., No. 1 Fruit, Mountain View, Kern Co.	4-31-29	5,256	will deepen
Monterey Expl., No. 2 Nichols, Edison, Kern Co.	14-30-29	1,805	cmtd. 1,745
Westbrook Oil, No. 1 Edison, Kern Co.	4-30-29	443	sd. sh. drlg.
Wood-Callahan Oil, No. 1 Harvey, Edison, Kern Co.	21-30-29	4,380	sd. sh. drlg.
General Pet., No. 1 Houchin, Arvin, Kern Co.	27-31-29	7,250	sd. sh. drlg.
Arkelo Oil, No. 1 Lerdo, Kern Co.	23-28-26	10,050	fish. D.P.
Union Oil, No. 1-34 Rio Bravo, Kern Co.	34-28-25	11,235	sd. sh. drlg.
Continental Oil, No. 1 Rosedale, Kern Co.	12-29-26	10,210	fish. D.P.
Superior Oil, No. 9 KCL, Greeley, Kern Co.	3-30-26	7,895	gr. sd. drlg.
Standard Oil, No. 11-8 KCL, Greeley, Kern Co.	18-29-26	7,426	fish. D.P.
Standard Oil, No. 11-9 KCL, Greeley, Kern Co.	20-29-26	7,315	sd. sh. drlg.
Standard Oil, No. 11-10 KCL, Greeley, Kern Co.	17-29-26	6,640	sd. sh. drlg.
Standard Oil, No. 12-2 KCL, Greeley, Kern Co.	16-29-26	7,711	sd. sh. drlg.
Standard Oil, No. 1-F Greeley, Kern Co.	20-29-26	5,997	sd. sh. drlg.
Shell Oil, No. 8-28-A KCL, Ten Section, Kern Co.	28-30-26	6,752	sd. sh. drlg.
Shell Oil, No. 61-31-B KCL, Ten Section, Kern Co.	30-30-26	8,241	O.S. drlg.
Ohio Oil, No. 3-E, K.C.L., Ten Section, Kern Co.	14-30-25	7,363	sd. sh. drlg.
Standard Oil, No. 1 Magunden, Kern Co.	2-30-28	3,550	sd. sh. drlg.
Merritt Annex Oil, No. 6 Midway-Sunset, Kern Co.	25-12-24	2,890	P.B. 2,825
C. C. M. Oil, No. 44-21 Midway-Sunset, Kern Co.	21-32-23	1,842	sd. sh. drlg.
C. C. M. Oil, No. 45-21 Midway-Sunset, Kern Co.	21-32-23	2,300	sd. sh. drlg.
C. C. M. Oil, No. 1-U.S., Midway-Sunset, Kern Co.	30-32-24	2,985	P.B. 2,520
Hallmark Oil, No. 8 Midway-Sunset, Kern Co.	25-12-24	2,672	sd. sh. drlg.
Brookshire Oil, No. 3 Midway-Sunset, Kern Co.	24-31-22	1,192	sd. sh. drlg.
Richfield Oil, No. 14 Fellows, Midway-Sunset, Kern	6-32-23	1,033	sd. sh. drlg.
Wreden Pet., No. 1 Midway-Sunset, Kern Co.	12-11-24	1,691	br. sh. drlg.
Standard Oil, No. 3-13-D Midway-Sunset, Kern Co.	13-32-24	3,590	sd. sh. drlg.
National Oil, No. 30 Midway-Sunset, Kern Co.	35-32-23	765	sd. sh. drlg.
Gibson Oil, No. 5 O'Brien, Midway-Sunset, Kern Co.	6-11-23	1,532	sd. sh. drlg.
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern Co.	33-11-23	3,675	hd. sh. drlg.
Texas Co., No. 25 Midway-Sunset, Kern Co.	32-32-24	3,170	rig to pump
Texas Co., No. 26 Midway-Sunset, Kern Co.	32-32-24	3,240	sd. sh. drlg.
U. S. Pumping Equip., No. 2 Midway-Sunset, Kern Co.	12-11-24	1,590	idle
Transco Drlg., No. 4 Grimm, Midway-Sunset, Kern Co.	25-32-23	2,773	dry; abd.
Hall-Baker, No. 1 Tejon, Kern Co.	1-10-19	2,325	gr. sd. drlg.
Central Valley Oil, No. 1 Fresno, Fresno Co.	1-12-20	95	sd. sh. drlg.
Pure Oil, No. 1 Cantua, Fresno Co.	31-18-17	4,055	sd. sh. drlg.
K. N. D. A., No. 4-18-J Kettleman North, Fresno Co.	18-21-17	11,360	gr. sd. drlg.
K. N. D. A., No. 43-34-J Kettleman North, Fresno Co.	34-21-17	6,190	br. sh. drlg.
K. N. D. A., No. 41-4-P Kettleman North, Fresno Co.	4-22-17	8,065	hd. sh. drlg.
K. N. D. A., No. 83-4-P Kettleman North, Fresno Co.	4-22-17	6,685	fish. D.P.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.P., casing pressure.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., plugging big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rigging up rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shut off no good.
W.S.R. or W.O.S.R., wait on standard rig.
Wtr., water.

K. N. D. A., No. 27-12-P Kettleman North, Kings Co.	12-22-17	5,794	br. sh. drlg.
K. N. D. A., No. 38-12-P Kettleman North, Kings Co.	12-22-17	2,162	sd. sh. drlg.
K. N. D. A., No. 6-6-Q Kettleman North, Kings Co.	6-22-18	7,375	br. sh. drlg.
K. N. D. A., No. 27-6-Q Kettleman North, Kings Co.	6-22-18	6,791	br. sh. drlg.
Standard Oil, No. 27-21-J Kettleman North, Fresno	21-21-17	5,896	sd. sh. drlg.
Standard Oil, No. 27-23-J Kettleman North, Fresno	33-21-17	7,687	br. sh. drlg.
Standard Oil, No. 2-11-P Kettleman North, Kings Co.	11-22-17	6,291	sd. sh. drlg.
Standard Oil, No. 76-1-P Kettleman North, Kings Co.	1-22-17	5,187	sd. sh. drlg.
Superior Oil, No. 1 Huffman, Kettleman No., Fresno	29-21-17	9,575	sd. sh. drlg.
Tembior Oil, No. 1-B Kettleman Middle, Kings Co.	25-23-18	8,300	cleaning out
Amerada Pet., No. 1 Carano, Los Banos, Merced Co.	19-10-11	2,194	sd. sh. drlg.
Hancock Oil, No. 1 Huasna, San Luis Obispo Co.	30-12-33	3,361	sd. sh. drlg.
Elba Oil, No. 1 Pajaro, Monterey Co.	6-13-2	3,970	recmtd. 3,871
Amerada Pet., No. 1 Sacramento, Rio Vista, Solano	24- 4-2	4,347	sd. sh. drlg.
Tracy Drlg., No. 1 Hansen, Rio Vista, Solano Co.	25- 4-2	4,175	sd. sh. drlg.
Standard Oil, No. 2 Weyl, McDonald Island, S. Joaquin	25- 2-4	2,971	sd. sh. drlg.
Standard Oil, No. 1 Morris, Delano, Tulare Co.	36-24-23	8,624	sd. sh. drlg.
Magnet O. & G. Corp., No. 1 Delano, Tulare Co.	29-24-24	7,231	sd. sh. drlg.
Standard Oil, No. 1 Hooper, Woodland, Yolo Co.	32- 9-1	4,585	gr. sh. drlg.
Standard Oil, No. 1 Cook, Dunnigan, Yolo Co.	32-12-1	3,763	gr. sh. drlg.
Empire O. & G., No. 1 Woodland, Yolo Co.	8- 9-3	231	sd. sh. drlg.
Wilshire Oil, No. 1 Half Moon Bay, San Mateo Co.	20- 6-5	2,665	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well and location:	S.T.R.	Depth	Status
Richfield Oil, No. 1 Howard, Los Angeles Co.	7- 3-14	7,488	sd. sh. drlg.
Richfield Oil, No. 1-SF El Segundo, Los Angeles Co.	18- 3-14	7,690	P.B. 7,615
Richfield Oil, No. 1 McCray, El Segundo, Los Angeles	12- 3-15	2,147	sd. sh. drlg.
Union Oil, No. 3 El Segundo, Los Angeles Co.	18- 3-14	7,520	pump 150 b.d.
Apex Pet., No. 1 Elsie, El Segundo, Los Angeles Co.	12- 3-15	3,378	sd. sh. drlg.
Tide Water A. O., No. 1 El Segundo, Los Angeles Co.	8- 3-14	6,450	sd. sh. drlg.
Ohio Oil, No. 7 Gough, El Segundo, Los Angeles Co.	7- 3-14	7,240	flow. 510 b.d.
Ohio Oil, No. 8 Gough, El Segundo, Los Angeles Co.	7- 3-14	6,691	sd. sh. drlg.
Texas Co., No. 5 Security, El Segundo, Los Angeles	18- 3-14	4,982	sd. sh. drlg.
Ruchti Pet., No. 1 El Segundo, Los Angeles Co.	12- 3-15	4,161	sd. sh. drlg.
Standard Oil, No. 2 Refinery, El Segundo, L. Angeles	13- 3-15	7,417	sd. sh. drlg.
Standard Oil, No. 4 Refinery, El Segundo, L. Angeles	13- 3-15	3,174	sd. sh. drlg.
Pac. Western Oil, No. 1 El Segundo, Los Angeles Co.	7- 3-14	7,200	hd. sh. drlg.
Getty Oil, No. 1-A El Segundo, Los Angeles Co.	7- 3-14	4,495	sd. sh. drlg.
Standard Oil, No. 84 L.A.I., Inglewood, Los Angeles	17- 2-14	1,455	cmtd. 1,455
B. C. L. Oil, No. 1 Torrance, Los Angeles Co.	5- 4-14	3,558	rig to pump
C. C. M. Oil, No. 34-T Torrance, Los Angeles Co.	16- 4-14	4,960	O.S. drlg.
Keystone Oil, No. 2 Torrance, Los Angeles Co.	16- 4-14	2,975	cmtd. 2,975
Loma Verde Oil, No. 12 Torrance, Los Angeles Co.	16- 4-14	4,873	P.B. 4,567
Kavanaugh, E. C., No. 1 Palos Verdes, Los Angeles	17- 4-14	5,075	sd. sh. drlg.
Tide Water A. O., No. 4 Cypress, Potrero, Los Angeles	34- 2-14	4,463	sd. sh. drlg.
Shell Oil, No. 92 Reyes, Dominguez, Los Angeles Co.	33- 3-13	7,190	fish. D.P.
Union Oil, No. 56 Callender, Dominguez, Los Angeles	33- 3-13	7,810	sd. sh. drlg.
Union Oil, No. 57 Callender, Dominguez, Los Angeles	33- 3-13	4,364	sd. sh. drlg.
Union Oil, No. 10 Carson, Dominguez, Los Angeles	33- 3-13	957	cmtd. 956
Union Oil, No. 45 Hellman, Dominguez, Los Angeles	33- 3-13	4,250	sd. sh. drlg.
Barnsdall Oil, No. 18 O'Dea, Rosecrans, Los Angeles	18- 3-13	2,131	sd. sh. drlg.
Union Oil, No. 35 H.P., Rosecrans, Los Angeles Co.	18- 3-13	5,400	sd. sh. drlg.
Union Oil, No. 17 Rosecrans, Los Angeles Co.	18- 3-13	7,250	sd. sh. drlg.
Macrate, A. N., No. 2 Rosecrans, Los Angeles Co.	17- 3-13	8,261	sd. sh. drlg.
Bolsa Chica Oil, No. 1 Rosecrans, Los Angeles Co.	20- 3-13	7,944	P.B. 7,270
Burt, A. G., No. 1 Newhall, Los Angeles Co.	36- 4-17	2,352	hd. sh. drlg.
Barnsdall Oil, No. 2-S.F., Newhall, Los Angeles Co.	26- 4-17	5,084	redrlg. 2,750
Holbrook Pet., No. 1 Newhall, Los Angeles Co.	28- 4-16	6,250	P.B. 5,700
General Pet., No. 5-A Ford, Wilmington, Los Angeles	4- 5-13	2,535	sd. sh. drlg.
General Pet., No. 22 Ford, Wilmington, Los Angeles	4- 5-13	4,233	P.B. 3,935
General Pet., No. 5 Isco, Wilmington, Los Angeles	4- 5-13	2,357	sd. sh. drlg.
General Pet., No. 6 Isco, Wilmington, Los Angeles	4- 5-13	2,553	sd. sh. drlg.
Bankline Oil, No. 18-P.T., Wilmington, Los Angeles	34- 4-13	2,974	sd. sh. drlg.
Bankline Oil, No. 9-D.H., Wilmington, Los Angeles	34- 4-13	3,159	sd. sh. drlg.
Bankline Oil, No. 23-D.H., Wilmington, Los Angeles	34- 4-13	2,291	sd. sh. drlg.
Baker Oil, No. 1 Wilmington, Los Angeles Co.	33- 4-13	2,573	sd. sh. drlg.
Buckeye Union Oil, No. 1 Bill, Wilmington, L. Angeles	32- 4-13	2,286	sd. sh. drlg.
Caminol Oil, No. 1-P Wilmington, Los Angeles Co.	33- 4-13	3,600	sd. sh. drlg.
Hall, F. C., No. 1 V.H., Wilmington, Los Angeles Co.	33- 4-13	3,600	flow. 260 b.d.
McDonald & Burns, No. 2-B Wilmington, Los Angeles	32- 4-13	2,981	sd. sh. drlg.
Neilson et al, No. 1 Wilmington, Los Angeles Co.	33- 4-13	2,981	sd. sh. drlg.
Pac. Western Oil, No. 1-R Wilmington, Los Angeles	33- 4-13	2,955	deep test
Pongratz, No. 2 Banning, Wilmington, Los Angeles	32- 4-13	3,646	flow. 460 b.d.
Pongratz, No. 1 Nix, Wilmington, Los Angeles Co.	33- 4-13	1,941	sd. sh. drlg.
Royalty Serv., No. 842-2 Wilmington, Los Angeles Co.	33- 4-13	5,775	cleaning out
Royalty Serv., No. 2-P Wilmington, Los Angeles Co.	32- 4-13	2,780	sd. sh. drlg.
Selegna Drlg., No. 12 Wilmington, Los Angeles Co.	32- 4-13	2,985	sd. sh. drlg.
Sonwell Oil, No. 3-W Wilmington, Los Angeles Co.	32- 4-13	2,781	sd. sh. drlg.
Union Pacific, No. 38 Wilmington, Los Angeles Co.	34- 4-13	3,375	flow. 375 b.d.
Union Pacific, No. 40 Wilmington, Los Angeles Co.	33- 4-13	3,390	sd. sh. drlg.
Union Pacific, No. 41 Wilmington, Los Angeles Co.	34- 4-13	3,436	sd. sh. drlg.
Union Pacific, No. 44 Wilmington, Los Angeles Co.	34- 4-13	2,131	sd. sh. drlg.
Union Pacific, No. 55 Wilmington, Los Angeles Co.	4- 5-13	3,460	sd. sh. drlg.
Union Pacific, No. 57 Wilmington, Los Angeles Co.	4- 5-13	3,436	sd. sh. drlg.
Union Pacific, No. 4-C Wilmington, Los Angeles Co.	33- 4-13	3,432	flow. 1,110 b.d.
Union Pacific, No. 5-C Wilmington, Los Angeles Co.	33- 4-13	2,365	sd. sh. drlg.
Union Pacific, No. 6-C Wilmington, Los Angeles Co.	33- 4-13	3,495	sd. sh. drlg.
Camroo Oil, No. 1 Sterns, Pomona, Los Angeles Co.	33- 1-9	2,660	sd. sh. drlg.
Julian, C. A.,, No. 1 Koch, Walnut, Los Angeles Co.	5- 2-9	2,760	gr. sd. drlg.
Davis, No. 1 Garvey Ranch, Montebello, Los Angeles	22- 2-11	497	sd. sh. drlg.
St. Helens Pet., No. 20-M, Montebello, Los Angeles	6- 2-11	4,010	sd. sh. drlg.
Hilldon Oil, No. 3 Bixby, Flood Control, Los Angeles	13- 4-13	2,379	sd. sh. drlg.
Union Oil, No. 1 Flood Control, Los Angeles Co.	13- 4-13	3,950	sd. sh. drlg.
Texas Co., No. 3 Flower, Long Beach, Los Angeles	19- 4-12	4,843	pump. 35 b.d.
Texas Co., No. 4 Bauman, Long Beach, Los Angeles	19- 4-12	3,295	sd. sh. drlg.
Texas Co., No. 14 Harlow, Long Beach, Los Angeles	19- 4-12	2,187	sd. sh. drlg.
Rico Pet., Inc., No. 1 Long Beach, Los Angeles Co.	30- 4-12	3,324	sd. sh. drlg.
Richfield Oil, No. 4 Keon, Long Beach, Los Angeles	29- 4-12	3,495	sd. sh. drlg.
Exeter Oil, No. 5 Transport, Long Beach, Los Angeles	19- 4-12	3,190	sd. sh. drlg.
Union Oil, No. 100 Santa Fe Springs, Los Angeles Co.	6- 3-11	10,739	cmtd. 10,217
Texas Co., No. 7-W Santa Fe Springs, Los Angeles	6- 3-11	6,530	sd. sh. drlg.
Continental Oil, No. 40 Bixby, Seal Beach, Orange Co.	2- 5-12	6,475	hd. sh. drlg.
Wilshire Oil, No. 6-B Huntington, Orange Co.	10- 6-11	5,375	pump. 385 b.d.
Brea Canyon Oil, No. 36 Brea Canyon, Orange Co.	2- 3-10	4,253	hd. sh. drlg.
Standard Oil, No. 127 Murphy, West Coyote, Orange	18- 3-10	2,890	sd. sh. drlg.
Arrowhead Oil, No. 2 Bradford, Richfield, Orange Co.	32- 3-9	4,632	P.B. 4,555
Texas Co., No. 2 Isaacs, Richfield, Orange Co.	32- 3-9	3,420	sd. sh. drlg.
Union Oil, No. 29 Chapman, Richfield, Orange Co.	30- 3-9	8,818	sd. sh. drlg.
Union Oil, No. 46 Chapman, Richfield, Orange Co.	29- 3-9	982	sd. sh. drlg.
Hjorth & Mohr, No. 1 Yorba, Orange Co.	22- 3-9	1,371	O.S. drlg.
Beverly Hills Pet., No. 1 Fricke, Yorba, Orange Co.	21- 3-9	1,914	bailing
Mid-State Pet., No. 1 Oliver, Yorba, Orange Co.	22- 3-9	1,742	P.B. 1,600
Shell Oil, No. 1-H Anaheim, Orange Co.	9- 4-10	7,010	sd. sh. drlg.

KANSAS

Week Ending October 16 (Descriptions are East unless marked otherwise)

Barber County

Helmerich & Payne et al No. 1 Blunk Est., C SE sec. 18-34-13w. Drlg. 5,167 ft.

Olson Oil Co. and Skelly Oil Co. No. 1 Elsea, SW SE NW sec. 27-32-14w. Drlg. 5,038 ft.

Palmer Oil Corp. et al No. 1 Warwick, C NW sec. 29-31-10w. Rig.

W. I. Southern, Inc., No. 1 Davis, SE SE NE sec. 24-34-15w. Wtr. 5,592-5,600 ft.; P.B. 4,860 ft.; S.D.

Barton County

Armer & Vernon Oil & Gas Co. No. 1 Persons, SW SW SE sec. 7-17-13w. Sil. 3,472-3,505 ft.; D.&A.

Brouk and National Ref. Co. No. 1 Gory, NW SW sec. 10-17-13w. T.D. 3,248 ft.; 1,000 ft. O.I.H. in 7 hrs.; rng. 5-in.

Martin & Foraker et al No. 1 Dick Est., NE SW SW sec. 31-19-11w. Rig.

Arch Merriam et al No. 1 Norris, NE NE NW sec. 33-17-11w. S.D. 355 ft.

Tom Palmer et al No. 1 Polzin, NW SE sec. 4-16-12w. Drlg. 1,805 ft.

C. L. Price No. 1 Hammeke, NE NE SW sec. 12-18-12w. Sil. 3,415-27 ft.; 1,800 ft. O.I.H.

Shell Pet. Corp. No. 1 Peterman, SE NE SE sec. 13-16-14w. T.D. 3,366 ft.; swb. 67 B.O. in 2 hrs.

Ralph Wixson et al No. 1 Buhrle, SE SE NE sec. 14-16-13w. H.F.W. 3,420-28 ft.; T.D. 3,435 ft.; S.D.O.

Chautauqua County

C. L. Brosius et al No. 1 Garrett, NW SW NW sec. 26-32-11. H.F.W. 2,076 ft., T.D.; P.B. 1,545 ft.; C.O.

W. G. Buffington No. 1 Fisher, CWL SW NW sec. 10-34-9e. Drlg. 1,475 ft.

C. R. Craft No. 1 Lagree, SE NW NE sec. 8-32-12e. T.D. 2,080 ft.; P.B. 687 ft.

Harrison No. 1 Brown, NE SE NE sec. 19-34-10. S.D. 820 ft.

Ingot Oil Co. No. 1 McKee, SW NE SW sec. 21-32-12. T.D. 1,209 ft.; acd.

I. W. Siegel No. 1 Temple, SW cor. sec. 31-32-12. Rig.

S. H. Vineard No. 1 Hughes, NE NE SE sec. 13-32-12. T.D. 426 ft.; abd.

Clark County

Olson Oil Co. et al No. 1 Watkins, SW NW sec. 23-32-21w. Drlg. 1,508 ft.

Cowley County

Arthur Brewer No. 1 Starkey, SW NE sec. 16-30-4. T.D. 2,802 ft.; swbd. 65 B.O.P.D.

Pryor & Lockhart No. 1 Brown, NE SE SE sec. 34-33-2e. Sil. 3,853-64 ft., T.D.; P.B. 3,403 ft.; W.O.C.

Smith & Price No. 1 Henderson, SW SW sec. 25-32-6. Drlg. 1,100 ft.

Ellis County

Aylward Prod. Co. et al No. 1 Berens, SE SE sec. 10-14-16w. Drlg. 2,570 ft.

Brunson Drlg. Co. et al No. 1 Weisner, SE SW SE sec. 31-13-17w. T.D. 3,651 ft.; P.B. 3,624 ft. to reset 5-in. and acd.

Colonial Oil Co. and Bernheimer No. 1 Albert, SW SW NE sec. 31-12-18w. C.O. 1,270 ft.

Lario O. & R. Co. No. 1 Bell, NW NW NE sec. 8-12-18w. U.R. 8-in. 3,303 ft.

P. G. Reynolds et al No. 1 Karlin, NW cor. sec. 13-12-18w. S.D. 2,838 ft.

C. E. W. Skiles et al No. 1 Jensen, SW SE NE sec. 26-12-18w. Drlg. 2,980 ft.

Earl Wakefield et al No. 1 Burnett, NW NW NE sec. 1-11-18. Sil. 3,570-74 ft.; swb. 65 B.O. first hr.; swbg.

Ellsworth County

Hinkle et al No. 1 Alden, SE SE SW sec. 17-17-10w. S.D. 2,310 ft.

Ford County

Olson Oil Co. et al No. 1 Fowler, C SW sec. 26-27-22w. Set 12-in. csg. 250 ft.; W.O.C.

Grant County

R. K. Wilson No. 1-20 Bank, C NE sec. 20-28-37w. Set 6-in. 2,480 ft.; 1,000,000 ft. gas.

R. K. Wilson No. 1-22 Helmly, C SE sec. 22-28-37w. Set 10-in. at 544 ft.; W.O.C.

Greenwood County

Eagle Oil Co. No. 1 Stine, NE NE SE sec. 13-28-10. S.D. 700 ft.

Ward McGinnis et al No. 1 Henly Estate SW cor. sec. 25-25-9. T.D. 2,234 ft.; H F.W.; P.B.; cmt. 6-in.

S. Van Devanter et al No. 1 Dove, NE SE SW sec. 12-28-11. Drlg. 1,100 ft.

Whittaker & Johnson No. 1 Cannon, CEL SE NW sec. 8-26-13. Rig.

Harvey County

Allison et al No. 1 Hawks, SE SW NE sec. 16-24-1w. Drlg.

Jackson County

Lemmick Oil Co. No. 1 Marble Savings Bank, NE cor. sec. 26-9-14. Spd. and S.D.

Kearny County

J. L. Murphy No. 1 Masonic Home, C NW sec. 1-26-36w. S.D. 1,468 ft.

Kingman County

Carter Oil Co. No. 1 Davis, C E½ NE NE sec. 24-28-8w. Set 8⅝-in. 4,086 ft.

Logan County

Morgan, Flynn, Cobb et al No. 1 McMullen, C NW sec. 9-13-37w. Drlg. 4,385 ft.

McPherson County

C. E. Ash Drlg. Co. No. 1 Broman, NE NE NW sec. 19-17-4w. Set 6-in. 3,100 ft.

Boyle & Grossman No. 1 Diener, SE SE NE sec. 35-19-1w. Drlg. 1,845 ft.

Bradley Bros. No. 1 Barnholt, SW SW SW sec. 30-20-5w. Chat 3,292 ft.; T.D. 3,338 ft.; P. 115 B.O. in 14 hrs.; down 5 hrs.

Fred C. Frank et al No. 1 Deines, SE NW NE sec. 12-19-1w. Set 8-in. 2,775 ft.; S.D.

Wamhoff et al No. 1 Nuse, SE NE SW sec. 18-18-4w. S.D. 1,850 ft.

Meade County

Pacific Mid-West Co. No. 1 Rexford, NE SE SW sec. 8-30-29w. Drlg. 900 ft.

Mitchell County

Geo. Siedhoff et al No. 1 Greiss, SW SW SE sec. 16-8-10w. S.D. 4,022 ft.

Ness County

Trojan O. & G. Co. No. 1 Moses, C SW NW sec. 10-18-25w. Drlg. 100 ft.

Trojan O. & G. Co. No. 1 Page Milling Co., SE SE NW sec. 36-18-26w. U.R. 8-in. 3,265 ft.

Newton Dev. Co. No. 1 Tenny, NW NW SE sec. 19-18-25w. T.D. 4,450 ft.; 3,000 ft. O.I.H.

Osborne County

Fred C. Chaddox and Atlantic Ref. Co. No. 1 Slater, NE SW NE sec. 33-10-15w. Drlg. 3,670 ft.

F. E. Fullerton & Son No. 1 Moray, NE SE SW sec. 27-10-12w. S.D. 500 ft.

Phillips County

C. W. Davidson et al No. 1 Elliff, SE NE NE sec. 35-5-18w. S.D. 350 ft.

Pratt County

Atlantic Ref. Co. et al No. 1 Runyon, SW NW NE sec. 11-27-13w. T.D. 4,437 ft.; P.B. 4,300 ft.; acd.; pot. 397 B.O. and 18% wtr.; comp.

Colonial Oil Co. et al No. 1 Hays, SE SW sec. 4-26-12w. Drlg. 240 ft.

Sitelly Oil Co. et al No. 1 Adams, SE NW NE sec. 2-28-11w. Drlg. 4,270 ft.

Stanolind O. & G. Co. No. 1 Hartsell, NW SW sec. 14-26-12w. Sil. 4,374 ft.; sulfur wtr. 4,397-4,415 ft.; D.&A.

Reno County

Lib Phillips et al No. 1 McPheeters, NE NE NW sec. 22-26-8w. Spd. and S.D.

Sam Schneider et al No. 1 Kroecker, NE cor. sec. 12-22-5w. Drlg. 2,855 ft.

Westgate-Greenland et al No. 1 Popp, SW SW NE sec. 7-25-4w. Set 15-in. 151 ft.; W.O.C. 425 ft.

Rice County

Bell O. & G. Co. et al No. 1 Timbers, NW NE sec. 8-21-8w. Drlg. 740 ft.

Elbar Corp. No. 1 Ehler, NE SE sec. 8-21-9w. Drlg. 1,200 ft.

Gerbrand-Pulse Oil & Drilling Co. No. 1 Wellman, SW cor. sec. 22-21-9w. Est 3,000,000 ft. gas, 3,316-17 ft. T.D.; rig burned.

Gillespie et al No. 1 Strong, NE NW sec. 9-18-8w. Spd. and S.D.

John Hanna et al No. 1 Marshall, NE NW NW sec. 30-18s-8w. S.D. 1,515 ft.

Skiles et al No. 1 Campbell, SE SE NE sec. 28-19-9w. Swb. 14 B.O.P.H. and 20% wtr.; T.D. 2,957½ ft.; shot; on incr.

W. E. Witt et al No. 1 Fair, NW SE SE sec. 4-22-8w. S.D. 2,495 ft.

Rooks County

C. R. Craft et al No. 1 Ziegler, NE SW sec. 8-10-16w. Rng. 6-in. 3,100 ft.

Granam et al No. 1 Fike, SW cor. sec. 9-9-17w. T.D. 3,326 ft.; pmpd. 50 B.O. and 35 B.W. in 8 hrs.

J. H. Lester No. 1 Methene, SE SE NW sec. 29-10-20w. Sil. 3,900 ft.; H.F.W. 3,930-35 ft.; D.&A.

Superior Oil Corp. et al No. 1 Casey, SE SE sec. 35-10-19w. Set 12-in. at 149 ft.; W.O.C.

Rush County

Duwe & Brouk No. 1 Lebsack, SE SE NE sec. 13-16-16w. Sil. 3,492-95 ft.; 1,500 ft. sulfur water in hole in 2½ hrs.; T.D 3,512 ft.; S.D.O.

Earl Wakefield et al No. 1 Zimmerman, SE SE SW sec. 7-16-18w. Set 6-in. 3,113 ft.; C.O. 3,320 ft.

Wakefield & Brouk No. 1 Kerbs, NW NW SE sec. 11-17-16w. S.D. at 150 ft.

Russell County

Cities Service Oil Co. et al No. 1 Eichman, SW SE sec. 12-15-14w. Drlg. 3,116 ft.

Emrichs et al No. 1 Anderson, NE SE SW sec. 33-15-11w. Spd. and S.D.

Murfin and Vernon O. & G. Co. No. 1 Pearson, NE cor. sec. 31-15-15w. Spd and S.D.

Parks No. 1 Opdycks, SW cor. sec. 20-14-13w. Drlg. 2,425 ft.

Phil-Han Oil Co. No. 1 Deines, NE NE NW sec. 33-14-14w. Drlg. 2,425 ft.

C. L. Price No. 1 Sebesta, NE NE sec. 36-15-11w. Drlg. 1,640 ft.

Tramp Drlg. Co. et al No. 1 Polcyn, NE SE sec. 34-14-15w. Drlg. 3,180 ft.

Winkler & Koch No. 1 Jones, SE SE NW sec. 22-14-13w. Sil. 3,180 ft.; S.D.O.

Sedgwick County

Fulton et al No. 1 fee, NE SE sec. 35-28-1e. Drlg. 1,508 ft.

McKnab No. 1 Garrett, SE SW SW sec. 18-29-2e. Drlg. 80 ft.

L. W. Murfin et al No. 1 Martin, SE NW sec. 32-28-1e. T.D. 2,730 ft.; U.R. 8-in.
National Ref. Co. No. 1 fee, SE NE SE sec. 26-27-2e. Set 10-in. 2,025 ft.
W. G. Talbott et al No. 1 Downs Est., SE SE NW sec. 32-28-2e. T.D. 2,232 ft.; 3,922,000 ft. gas.
Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. S.D. 2,010 ft.

Stafford County

W. P. Faulkner No. 1 Moses, NW SW sec 9-22-13w. S.D. 2,170 ft.
Hannum Drlg. Co. et al No. 1 G. H. Thole, NE sec. 27-23-12w. Drlg. 1,600 ft.
Kessler O. & G. Co. et al No. 1 Pinkston, NE NW sec. 17-22-14w. Drlg. 1,980 ft.
Fred Rust et al No. 1 Drach, NE SW sec. 12-22-13w. Drlg. 2,430 ft.
Fred P. Rust et al No. 1 Johnson, NW SW sec. 29-25-12w. Sil. 4,254 ft.; cd. 4,268-78 ft.; sulfur odor; S.D.O.
Torry & Feaster et al No. 1 Allen, NW SE sec. 34-22-12w. Drlg. 3,210 ft.

Stevens County

United Prod. Co. No. 1 Beardsley, C N½ sec. 12-31-35w. Set 10-in. at 584 ft.; W.O.C.

Sumner County

W. M. McKnab No. 1 Blair, SW cor. sec. 7-30-1e. Wilcox 3,866-67 ft.; 500 ft. O. I.H. in 8 hrs.; rng. 6-in.
Cities Service Oil Co. No. 1 McCoy, SE SW sec. 11-35-2e. Drlg. 3,026 ft.
Magnolia Pet. Co. No. 1 Baird, SW SE SE sec. 2-30-4w. Drlg. 4,375 ft.
R. J. Wixson No. 1 Newton, SE SE sec 21-30-2e. S.D. 1,975 ft.

Trego County

Central Commercial Oil Co. No. 1 Locker, C SW sec. 12-14-22w. Drlg. 4,129 ft.
Thurman Hill et al No. 1 Lawson, SW SW NW sec. 7-14-22w. Fsg. 2,630 ft.
R. E. McNeely et al No. 1 Hile, C SE NE sec. 22-15-24w. Fsg. 3,071 ft.
Phillips Pet. Co. No. 1 Trego, C SE SW sec. 14-12-23w. Drlg. 4,028 ft.

Wallace County

Wilcox O. & G. Co. No. 1 Parker, SE SE NE sec. 9-11-40w. S.D. 3,480 ft.

Woodson County

Fred Rapp No. 1 Houghland, NW NW SE sec. 2-25-15. T.D. 1,527 ft.; D.&A.
Seibel No. 1 Kerschner, CNL NE NE sec. 3-26-15. S.D. 1,498 ft.
Steinle No. 1 Kash, SE SE sec. 4-26-15 S.D. 1,570 ft.

OKLAHOMA

Week Ending October 16

NORTHERN OKLAHOMA

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 2,227 ft.; S.D.

Caddo County

Indian Terr. Illum. Oil Co. No. 1 Dome-Bo, C NE SE sec. 29-6-10w. Cd. 4,107-17 ft.; S.O.; T.D. 4,947 ft.; set 9-in. at 4,927 ft.; W.O.C.

Cleveland County

Harper-Turner No. 1 Pollock, C W½ NW NW sec. 13-9-2w. Drlg. 3,420 ft.

Creek County

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 3,018 ft.; P.B. 3,015 ft.; drlg. up swb.

Garvin County

Carter Oil Co. No. 1 Potts, C E½ SE NW sec. 36-1n-3w. Drlg. 3,079 ft.
S. C. D. Edwards No. 1 Clark, NE cor. sec. 16-3n-3e. T.D. 2,405 ft.; drill pipe stuck.

Grady County

Doyle Pet. Co. No. 1 Huffine, NW NW SE sec. 30-5-8w. Drk.
Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. Drlg. 8,274 ft.

Greer County

J. I. Medlin et al No. 1 Broudie, NW cor. sec. 5-6n-20w. T.D. 90 ft.; S.D.

Haskell County

Continental Oil Co. No. 1 Ferguson, SW SE NE sec. 33-8-20. Drlg. 6,980 ft.

Hughes County

Burke-Greis Oil Co. No. 1 Rhea, SW SW SE sec. 14-10-9. Drlg. 2,913 ft.
C. H. Moore, Inc., No. 1 Huck, NW SW SW sec. 21-8-10. Drlg. 4,360 ft.
Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. Drlg. 4,374 ft.
Pure Oil Co. No. 1 Rogers, SE SE NE sec. 18-8-12. Drlg. 2,700 ft.

Kay County

E. J. Shaffer et al No. 1 McKee, NE NW sec. 20-28-1w. Rig.

Kiowa County

Hughes & Reese No. 1 Fultz, SE cor. sec. 10-6-18w. T.D. 865 ft.; S.D.

Lincoln County

Ardie Oil Co. No. 1 State, NE NE SE sec. 16-14-4. T.D. 4,968 ft.; 4 ballers oil in 12 hrs.; S.D.
C. L. Carlock No. 1 Young, C N half NW NW sec. 23-15-5. T.D. 1,600 ft.; S.D.; repairs.
Riley & Talbot et al No. 1 Weidler, NW SW NW sec. 20-17-2e. Drlg. 3,750 ft.

Logan County

Sunray Oil Co. and Olson Drlg. Co. No. 1 Canning, SW SW NE sec. 31-17-1w. T.D. 5,812 ft.; rng. Schlumberger.

Noble County

Darby Pet. Corp. No. 1 McCoy, SE SE SW sec. 24-23-2w. Cg. 4,752 ft.
Seaboard Western Oil Co. et al No. 1 Guthrie, NW NW NE sec. 6-20-2w. Drlg. 5,444 ft.; flwd. 205 B.O. by hds. in. 24 hrs.

Okfuskee County

F. W. Merrick No. 1 Mackey, NE NE SW sec. 29-11-10. Drlg. 3,640 ft.
Riverland Oil Co. No. 1 Board, NE NW SE sec. 10-13-10. Set 6-in. 2,788 ft.; T.D. 2,840 ft.

Osage County

National Ref. Co. No. 2 Page, NW SW SE sec. 28-22-9. Drlg. 2,572 ft.

Pittsburg County

Okla. Dist. Oil Co. No. 1 Beeler, NE NE SW sec. 7-7-14. T.D. 5,165 ft.; S.D.
Phillips Pet. Co. No. 1 Gilcrease, NW NW SE sec. 16-7-12. Drlg. 3,966 ft.
Pontotoc County
Boettcher O. & G. Co. No. 1 Gann, SE NW NE sec. 25-4n-7e. T.D. 4,347 ft.; S.D.
Kerlyn Oil Co. No. 1 Pratt, SW SE NE sec. 6-4-4e. Wilcox 2,290-2,355 ft.; T.D.; rng. Schlumberger.
Norbia Oil Co. No. 1 McBride, NE NE SW sec. 10-2n-5e. Loc.
Papoose Oil Co. et al No. 1 Jones, NW SE NW sec. 2-4-5. Viola 2,595 ft.; T.D. 2,840 ft.; run Schlumberger; S.D.O.
Union Dev. Co. No. 1 Abbott, SW NW NE sec. 34-3-6. T.D. 3,320 ft.; drill pipe stuck. S.D.

Seminole County

E. W. Jones et al No. 1 Belford, NE SE NE sec. 9-9-8. Drlg. 4,597 ft.
Stanolind O. & G. Co. and Amerada Pet. Corp. No. 1 Salina, SE NE NW sec. 4-5-6. T.D. 3,317 ft.; P.B. 3,214 ft.; no shut off; S.D.O.

Texas County

Hagey et al No. 1 Becker, C NE sec. 4-1n-13ecm. Set 7-in. at 2,673 ft., T.D.
Hagey et al No. 1 Peck, C NE sec. 6-1n-13ecm. Rig.

Washita County

John Koberg No. 1 Harms, NW NW NE sec. 6-10-16w. T.D. 4,260 ft.; S.D.

SOUTHERN OKLAHOMA

Atoka County

C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW sec. 2-4s-10e. T.D. 1,355 ft.; fsg.

Coal County

Carter Oil Co. No. 1 Claytor, C W½ NE SW sec. 27-2n-9e. T.D. 6,217 ft.; swb. 75 B.O.; swbg.
Phillips Pet. Co. No. 1 Beck, SE SW SW sec. 6-1n-9e. Drlg. 4,255 ft.

Comanche County

M. J. Andrichak No. 1 Korthouse, NW NE SW sec. 35-2n-10w. T.D. 1,095 ft.; abd.

Cotton County

Bowers & Wise No. 1 Pendergraft, NW SE SW sec. 4-4s-12w. Drk.

Jackson County

Ace Gutowsky No. 1 Booker, NW cor. sec. 33-2n-18w. Drlg. 1,022 ft.
E. L. Lippert et al No. 1 Miller, NW cor sec. 4-2n-18w. T.D. 713 ft.; abd.

Jefferson County

Massad & Swansberger No. 1 Barrett, NE SE SE sec. 14-6s-6w. Drlg. 1,890 ft.

Johnston County

Patton et al No. 1 McCrummins, C SW SW NE sec. 16-1s-6e. S.D. 1,380 ft.
W. T. Sheldon No. 1 Chapman, C NW NW sec. 26-4s-6e. T.D. 2,107 ft.; rng. 5½-in. csg.

Marshall County

F. W. Merrick, Inc., No. 1 Robinson, NE cor. sec. 33-7s-4e. Set 10-in. at 86 ft.; W.O.C.
Paul Robb et al No. 1 Vittitoe, C NE SE sec. 11-5s-4e. O.W.D.D.; C.O. to 720 ft.; S.D.

Murray County

Meyer & Greenup No. 1 Arbuckle, NW NW NE sec. 18-2s-3e. Spd. and S.D.
O. O. Owens No. 1 Fryer, NE SE NE sec. 34-1s-3e. T.D. 2,574 ft.; 1,400 ft. W.I.H. S.D.
Sinclair Prairie Oil Co. No. 1 Lancaster Trust, C SW NE sec. 10-1-2e. T.D. 4,404 ft.; freeing stuck pipe.

Pushmataha County

Erle Halliburton et al No. 1 Ragwell, SW NE NE sec. 30-3s-15e. T.D. 5,669 ft.; S.D.; repairs.

Stephens County

Jack Cohen No. 1 Pierce, NE NE NW sec. 24-2s-6w. Drlg. 1,665 ft.
Coline Oil Co. No. 1 Johnson, C SW SE SE NE sec. 1-2n-8w. T.D. 10,000 ft.; freeing 7-in. csg. stuck at 8,000 ft.
Chas. Newsom No. 1 Pfile, SW cor. sec. 1-2s-7w. Drlg. 3,478 ft.
Ed Parsons No. 1 Blake, C SW NW sec 22-2n-8w. T.D. 5,043 ft.; swb. 60 B.O. in 24 hrs.; fsg.

Tillman County

Cavens et al No. 1 Southerland, SW SW NW sec. 35-4s-16w. T.D. 44 ft.; S.D.
Gulf Oil Corp. No. 1 Prichard, SE NW SE sec. 32-3s-16w. Drlg. 5,243 ft.
Tom Walker No. 1 Bowman, SW SW NW sec. 10-4s-17w. S.D. 200 ft.

ARKANSAS

Columbia County

E. O. Olds No. 1 Dennis, NE SE SW sec. 4-17-21. 12-in. cmtd. 305 ft.
Standard of La. No. 1 J. P. McKean, SW sec. 8-16s-22w. S.O. on D.S.; rng. 7-in.; T.D. 7,204 ft.
Tide Water-Seaboard Oil Co. No. 1 Crumpler, SW NE SW sec. 24-17-19w. Drlg. 4,800 ft.

Hempstead County

H. D. Easton et al No. 1 R. M. LaGrone sec. 5-12-26. Will whipstock; T.D. 2,940 ft.

Miller County—Rodessa

Anding & Bird No. 4 Skipper, SW NW SW sec. 11-20-28. Drlg. 4,200 ft.
F. W. Burford No. 4 Ahren, SE SE SW sec. 10-20-28. Drlg. 2,400 ft.
F. W. Burford No. 1 A. J. Cross, E½ SE NE sec. 11-20-28. Drlg. 5,700 ft.
F. W. Burford No. 1 Ahern, S½ NE SW sec. 10-20-28. Comp.; flw. 33 B.P.H.; T.D. 6,107 ft.
F. W. Burford No. 1 August, S½ SE SW sec. 8-20-27. T.D. 6,164 ft.; tstg.
F. W. Burford No. 1-A J. O. Gerrald, NE cor. sec. 15-20-28. R.U.
F. W. Buford No. 2-B G. G. Gerrald, sec. 15-20-28. Drlg. 5,111 ft.
G. C. Grasty No. 1 Treadway, SW SE NE sec. 10-20-28. Drlg. 3,730 ft.
H. L. Hunt No. 1 Womack, SE sec. 10-20-28. Comp.; flw. 160 B.P.D.; T.D. 6,130 ft.
H. L. Hunt No. 2 Womack, NE SW SE sec. 10-20-28. Comp.; flw. 900 B.P.D.; T.D. 6,120 ft.
H. L. Hunt No. 3 Womack, NW SW SE sec. 10-20-28. Drlg. 5,804 ft.
H. L. Hunt No. 4 Womack, NE SE SE sec. 10-20-28. Drlg. 4,278 ft.
Kroll & Travis No. 1 Dickson, SW SE NW sec. 11-20-28. Drlg. 5,742 ft.
Roger Lacey No. 1 Grogan, SE cor. sec. 15-20-28. Comp.; flw. 54 B.P.H.; T.D. 6,041 ft.
R. H. Long No. 1 Greer, SW NE SE sec. 10-20-28. Drlg. 5,850 ft.
McClanahan et al No. 3 Capps, sec. 11-20-28. 7-in. 5,975 ft.; T.D. 6,050 ft.
McClanahan et al No. 4 Capps, NE NE SW sec. 11-20-28. Drlg. 5,350 ft.
McClanahan et al No. 5 Capps, NW SW SW sec. 11-20-28. Comp.; flw. 48 B.P.H.; T.D. 6,074 ft.
McClanahan et al No. 1-B Capps, N½ SW SW sec. 12-20-28. Comp.; flw. 65 B.P.H.; T.D. 6,112 ft.
McClanahan et al No. 1 J. P. Greer, SE SW NW sec. 11-20-28. Cg. 6,115 ft.
McClanahan No. 1 T. J. Hopkins, SE SW NE sec. 11-20-28. Drlg. 200 ft.
J. R. Ostrom No. 1 J. O. Gerrald, NW E½ sec. 15-20-28. Drlg. 5,729 ft.
Roberts Bros. Drlg. Co No. 2 W. A. Capps, SW NW SE sec. 16-20-28. Comp.; flw. 10 B.P.H.; T.D. 6,083 ft.
Roberts Bros. Drlg. Co. No. 3 W. A. Capps, SE SW NE sec. 16-20-28. Comp.; flw. 44 B.P.H.; T.D. 6,011 ft.
Skelly Oil Co. No. 1 Thomas, SW SE SW sec. 12-20-28. Drlg. 1,650 ft.
A. M. Sutton No. 1 Cross, SE cor. SE NE sec. 11-20-28. Drlg. 2,300 ft.
Texas Canadian Oil Co. No. 1 Dickson, SE NW sec. 11-20-28. Rng. 7-in.; T.D. 6,103 ft.

Ouachita County

Benedum & Trees No. 1 G. W. Slaughter, NW sec. 24-14-19. T.D. 3,001 ft.; D.&A.
O. F. Whittaker No. 1 C. C. Gutty, SW SE NW sec. 21-15-19w. Cg. 2,137 ft.

Pulaski County

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. Cg. 1,302 ft.

Union County—Schuler

E. M. Jones No. 2 Marine Oil Co., SW NW SE sec. 17-18-17. 10-in. 1,617 ft.
E. M. Jones No. 3 Marine Oil Co., NE NW SE sec. 17-18-17. Drk.
E. M. Jones No. 4 Marine Oil Co., SE SW SE sec. 17-18-17. R.U.
Lion Oil Ref. Co. No. 1 Marine Oil Co., NE SE SW sec. 17-18-17. R.U.
Lion Oil Ref. Co. No. 1-A Edna Morgan, O.W.D.D.; 7-in. cmtd. 7,683 ft.; T.D. 7,683 ft.
Lion Oil Ref. Co. No. 3-B Edna Morgan, NE NW SE sec. 18-18-17. R.U.
Phillips Pet. Co. No. 1 E. Gan, SW SE NE sec. 18-18-17. T.D. 6,062 ft.; O.W.D.D.; washing to bttm. preparatory to deepening.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

F. W. Burford No. 1 Pitts, NW sec. 1-23-16. T.D. 6,068 ft.; prep. acd.
F. W. Burford No. 1 R. A. Terry, NW E½ sec. 2-23-16. 9-in. 2,020 ft.
F. W. Burford No. 1 U. S. Govt., NE SE SW sec. 6-23-16. 13-in. cmtd. 193 ft.
Gulf Ref. Co. No. 2 Campbell, C sec. 4-23-16. 7-in. 5,941 ft.; T.D. 6,061 ft.
La. Oil Prod. Co. No. 13-B Muslow, SE cor. NW SW sec. 4-20-15. Drlg. 1,875 ft.
R. W. Norton No. 7 Starke, NW sec. 17-23-16. 6-in. 5,904 ft.; T.D. 5,985 ft.
R. W. Norton No. 10 Starke, NW sec. 17-23-16. Comp.; flow 8 B.P.H.; T.D. 5,980 ft.
Standard Oil Co. No. 3 McCoy, NE cor. NE NW sec. 10-23-16. Drlg. 4,587 ft.
Union Prod. Co. No. 6 Starke, SW cor. sec. 8-23-16. Drlg. 4,964 ft.

N. LOUISIANA WILDCATS

Bienville Parish

H. L. Hunt and Seaboard No. 1 Federal Ld. Bk., SW sec. 10-16-16. Drlg. 4,335 ft.

Bossier Parish

Ark.-La. Gas Co. No. 4 R. O. Roy, sec. 18-17-11. Cg. 4,933 ft.
L. W. Dennis No. 1 D. T. Roos, SW NW NW sec. 13-19-12. Will set 7-in.; T.D. 850 ft.
Triangle Drlg. Co. No. 1-A Schuler Est., SE NW sec. 13-17-12. Flwg. and tstg.; T.D. 3,118 ft.

Caddo Parish

W. P. Clark No. 1 Dyer, C sec. 10-20-16. T.D. 997 ft.; will D.D.
La. Oil Prod. Co. No. 11-B Muslow, sec. 4-20-15. Tstg.; T.D. 2,187 ft.
La. Oil Prod. Co. No. 12-B Muslow, sec. 4-20-15. Comp.; pmp. 60 B.P.D.; T.D. 2,172 ft.
L. J. Davis No. 1 Stiles, SE sec. 17-21-16 8-in. 1,007 ft.; W.O.S.R. 1,019 ft.
O. O. Olsen No. 1 R. T. Sharp, W½ NW sec. 15-18-16. Drlg. 3,052 ft.
Frank Perkins No. 2-A Stiles, SW NW SW sec. 33-21-16. Drlg. 1,840 ft.
Prairie River Synd. No. 1 Hutchinson, SW NW sec. 15-15-12. S.D. 9,141 ft.
Sam M. Richardson No. 1 Sentell, SW E½ sec. 9-19-14. Cg. 2,390 ft.
Surf-Maji Oil Co. No. 3 Self, SE sec. 10-20-15. W.O.S.R. 2,193 ft.

Claiborne Parish

Atlantic Ref. Co. et al No. 1-C Patton, sec. 29-21-4. Rng. 5-in.; T.D. 5,219 ft.
R. L. Bauman No. 1 C. S. L. Patton, SW SW NE sec. 1-20-5. 10-in. cmtd. 890 ft.
E. W. Gill No. 1 English, S½ NE SW sec. 29-21-4. Drlg. 1,000 ft.
Harry Hanbury No. 2-D E. Vaughn, N½ SW SW sec. 30-21-4. Drlg. 4,562 ft.
Hollifield & McFarland No. 2 H. W. Patton, W½ NE NE sec. 2-20-5. Rng. 7-in.; T.D. 5,220 ft.
T. L. James No. 1 Baker, sec. 25-21-5. 500 ft. oil; T.D. 5,222 ft.; W.O.S.R.
Lyons & Neely No. 1 Simms, NE NE sec. 32-20-5. Cg. 5,647 ft.
W. L. McClanahan No. 1 J. T. Lewis, W½ SW SE sec. 25-20-7. S.D. 300 ft.
A. O. Olson No. 1 W. H. Patton, S½ SE SE sec. 26-21-5. Drlg. 2,870 ft.
A. O. Olson No. 2-B T. F. Patton, N½ SE SW sec. 29-21-4. Comp.; flw. 22 B.P.H.; T.D. 5,128 ft.
C. R. Schuster No. 3 Patton Est., N¼ NE NE sec. 1-20-5. Fsg. for csg.; T.D. 5,377 ft.
A. O. Olson No. 4-A T. F. Patton, N½ SE SW sec. 30-21-5. Drlg. 3,780 ft.
Scouts Oil Corp. No. 1 Bean, E½ NE NW sec. 32-21-4. Flw. by heads; T.D. 5,159 ft.
Shreveport Oil Corp. No. 1 Edwards, NE sec. 16-20-5w. W.O.S.R.; T.D. 5,438 ft.

Concordia Parish

Coastal Mineral & Dev. Co. No. 1 Winsten, sec. 23-7-9e. T.D. 2,090 ft.; S.O.; prep. set csg.

De Soto Parish

Clear Lake Oil Co. No. 1 J. A. Woolums, NW sec. 29-12-12. Cg. 2,580 ft.

Lincoln Parish

Gigantic Oil Co. No. 1 R. L. Sanderson, NW SE NW sec. 30-18-1w. 16-in. 179 ft.
T. L. James No. 1 J. J. Spence, SW NE sec. 11-17-4. T.D. 6,619 ft.; tstg.
Ludel Oil Corp. No. 1 Gill, NE NE NW sec. 36-20-2w. Drlg. 5,976 ft.
Lyons & Neely No. 2-B H. E. Patton, C S½ NE SW sec. 6-20-4. Cg. 5,317 ft.
Magnolia Pet. Co. No. 2 F. Corbin, NE cor. sec. 6-20-4. 7-in. 5,299 ft.; T.D. 5,317 ft.
E. H. Moore, Inc. No. 1 Arcadia Comm. Bnk., C NW sec. 22-18-5. Drlg. 4,765 ft.
Red Iron Drlg. Co. No. 1 T. F. Patton, NW SW NE sec. 6-20-4. Comp.; flw. 7 B.P.H.; T.D. 5,236 ft.

Red River Parish

Gulf Ref. Co. No. 42 E. T. Robinson, NW sec. 25-13-11. Comp.; pmp. 11 B.P.D.; T.D. 2,552 ft.

W. J. Hunter No. 2 Long Bell Lbr. Co., SW NW sec. 20-19-9. Arg. set csg.

Sabine Parish

Hunter Co. No. 1 H. L. Bowman Co., NW cor. sec. 13-7-17. 12-in. 205 ft.

Webster Parish

V. L. Foster No. 2 J. M. Mixon, SE sec. 21-21-10. Drlg. 5,765 ft.

Magnolia Pet. Co. No. 4 Aarnes-Cox, NW sec. 22-21-10. Drlg. 7,631 ft.

Ohio Oil Co. No. 47 Bodcaw Acct. 2, SW SE sec. 15-21-10. Drlg. 8,415 ft.

Ohio No. 1 S. P. D. Covie and W. Cox, SW SW SE sec. 23-21-10. Drlg. 7,458 ft.

Ohio Oil No. 1 T. Crichton, Acct. No. 2 SE NE sec. 21-21-10. T.D. 8,503 ft.; rng. 7-in.

Ohio No. 7-B R. L. Holloway, 586 ft. N. 750 ft. E line, sec. 23-21-10. 7-in. 8,135 ft.; S.D. 8,188 ft.

A. G. Oliphant et al No. 1 Banks, NE NE sec. 34-21-10. Drlg. 7,644 ft.

Ohio Oil Co. No. 1 D. W. Merritt, SW cor. sec. 14-21-10. Drlg. 7,983 ft.

Standard Oil Co. of La. No. 7 Mrs. M. F. Davis, NE NE NW sec. 23-21-10. Drlg. 7,133 ft.

Standard Oil Co. of La. No. 2-B Mrs. M. E. Gray, NE NE NW sec. 26-21-10. Drlg. 7,238 ft.

United Gas No. 6 Tillman, NE sec. 28-21-10. 13⅜-in. 849 ft.; drlg. 4,122 ft.

Woodley Pet. Co. No. 2-B L. C. Cox. Drlg. 7,907 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Brookshire, sec. 66-12s-3e. T.D. 11,909 ft.; stuck D.S.; fsg.

Anse La Butte—St. Martin Parish

Anse La Butte Oil Corp. No. 1 Billeand, sec. 117-9s-5e. Drlg. sh. 521 ft.

Crusader Pet. Co. No. 3-B Begnaud. S.D. 4,146 ft.

Crusader Pet., Inc., No. 1 Central Oil Co., sec. 86-9s-5e. S.D. 27 ft.

Crusader Pet., Inc., No. 1 Patin, sec. 46-9s-5e. 10¾-in. csg. 400 ft.; T.D. 1,775 ft.; W.O.C.

Bay St. Elaine—Terrebonne Parish

F. J. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 910 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 4 Wilbert, sec. 74-9s-10w. T.D. 4,106 ft.; P.B. sdtrkd.; drlg. sh. 5,010 ft.; no report.

Bayou Cocotrix—Terrebonne Parish

Shell Pet. Corp. No. 2 Pelican, sec. 19-17s-15e. T.D. 9,495 ft.; 7-in. csg. 9,465 ft.; I.P. 934 B.P.D.; ¼-in. ck.

Shell Pet. Corp. No. 3 Pelican, sec. 19-17s-15e. Core oil sd. 9,511 ft.

Shell Pet. Corp. No. 3-B Realty, sec. 18-17s-15e. 16-in. csg. 117 ft.; drlg. sh. 2,473 ft.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 St. Charles Ld. Co., sec. 38-15s-20e. 10¾-in. csg. 2,688 ft.; drlg. sh. 5,365 ft.

Big Lake—Cameron Parish

Union Sulphur Co. No. 1 P. J. Hebert, sec. 18-12s-8w. 6⅝-in. csg. 8,441 ft.; T.D. 9,289 ft.; D.S. stuck; fsg.

Union Sulphur Co. No. 2 J. O. Hebert, sec. 18-12s-8w. Drlg. sh. 7,495 ft.

Black Bayou—Calcasieu Parish

Shell Pet. Corp. No. 36 Watkins. Drlg. sdy. sh. 4,582 ft.

Bosco—Acadia Parish

Superior Oil Co. No. 1 J. L. Larcade, sec. 34-8s-3e. Drlg. sh.&sd. 7,657 ft.

Superior Oil Co.-Pure Oil Co. No. 5 Larcade, sec. 35-8s-3e. Drlg. sh. 10,113 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 52 State, sec. 19-23s-20e. T.D. 4,345 ft.; started to blow out; D.S. pulled in two; sdtrkg.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 19 Sch. Ld., sec. 16-14s-13w. Drlg. sh. 4,426 ft.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 1 Dolph, sec. 36-13s-9e. T.D. 7,185 ft.; 7-in. csg. 6,904 ft.; W.O.C.

Pan American Prod. Co. No. 1 Eucer, sec. 11-13s-9e. R.U.

Pan American Ref. Co. No. 4 Laws Realty Co., sec. 30-13s-10e. T.D. 10,066 ft.; P. B. 7,180 ft.; perf. 7,120-50 ft.; tstg.

Pan American Prod. Co. No. 2 South Coast Corp., sec. 31-13s-9w. T.D. 7,228 ft.; 7-in. csg. 6,556 ft.

Pan American Prod. Co. No. 1 Veeder, sec. 30-13s-10e. T.D. 9,462 ft.; P.B. 2,615 ft.; 7-in. csg. 2,615 ft.; perf. csg. 2,589-91 ft.; made squeeze job; to reperf. csg. P.B. and sdtrkd.; T.D. 2,595 ft.; oil sd.; perf. 2,592-95 ft.; sanded up.

Choctaw—Iberville Parish

Standard Oil Co. No. 10 Grove, sec. 52-9s-11e. T.D. 5,303 ft. in salt; D.S. stck. P.B. 4,650 ft.; T.D. 5,075 ft.; sdtrkd. while rmg.; drlg. sh. 4,743 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 16 Community, sec. 29-10s-2e. T.D. 4,910 ft.; D.S. stuck.

Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. R.U.

Dog Lake—Terrebonne Parish

Texas Co. No. 18 State, sec. 5-22s-16e. T.D. 7,606 ft.; P.B. 1,564 ft.; drlg. sdy. sh. 5,659 ft.

Texas Co. No. 20 State, sec. 5-22s-16e. Core sd. S.O. 6,821 ft.

Edgerly—Calcasieu Parish

Crusader Pet., Inc., No. 1 Miller Bros., sec. 27-9s-11w. 7-in. csg. 6,078 ft.; drlg. sh. 6,410 ft.

Four Isle—Terrebonne Parish

Texas Co. No. 9 L.L.&E., sec. 24-21s-16e. Drlg. sdy. sh. 8,044 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 24 State, sec. 37-23s-33e. Drlg. sdy. L. 5,577 ft.

Gillis—Calcasieu Parish

Union Sulphur Co. No. 7 Kaufman, sec. 13-9s-8w. T.D. 7,079 ft.; 5-in. csg. 7,052 ft.; swbd. S.W.; P. B. 6,898 ft.; swbd. S.W. show oil and cut screen.

Union Sulphur Co. No. 2 Mary McIvor, sec. 14-9s-8w. Drlg. sh. 1,402 ft.

Hackberry—Cameron Parish

W. T. Burton No. 3 Lewis, sec. 22-12s-10w. R.U.

W. T. Burton No. 1 Porter Ellender, sec. 27-12s-10w. T.D. 5,578 ft.; conditioning mud.

M. P. O'Meara No. 1 Rigmaden heirs, sec. 22-12s-10w. Drk.

Stanolind O. & G. Co. No. 6 Duhon, sec. 22-12s-10w. Drlg. sh. 4,121 ft.

Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.

Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. Drk.

Stanolind O. & G. Co. No. 11 Carter & Sweeney, sec. 22-12s-10w. 10¾-in. csg. 1,451 ft.; T.D. 3,942 ft.; 7-in. csg. 3,898 ft.

Stanolind O. & G. Co. No. 26 Gulf Ld., sec. 22-12s-10w. 10¾-in. csg. 1,644 ft.; core sd. 3,108 ft.

Stanolind O. & G. Co. No. 53 State, sec. 22-12s-10w. 10¾-in. 1,930 ft.; T.D. 6,648 ft.; P.B. 4,080 ft.; drlg. sh. 5,810 ft..

Texas Co. No. 23-B State, sec. 12-12s-9w. T.D. 5,448 ft.; P.B. 2,409 ft.; T.D. 7,274 ft.; P.B. to sdtrk.; drlg. sh. in sdtrkd hole 6,634 ft.

Lockport-Cameron Parish

Magnolia Pet. Co. No. 35 Miller, sec. 9-10s-9w. T.D. 5,531 ft.; reaming.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Banta, sec. 40-13s-9e. Set 7-in. csg. 9,768 ft.; T.D. 10,480 ft.; perf. 10,412-24 ft.; flowed 738 bbls. of fluid, 25 pct. b.s.&w.; tstg.

Herton Oil Co. No. 5 Roans, sec. 40-13s-9e. T.D. 8,105 ft.; Abd.

Jennings—Acadia Parish

Frank W. Bennett et al No. 1 Brethern and Christ Church, sec. 41-7s-2w. T.D. 7,107 ft.; D.S. stuck; shot; fsg.

W. T. Burton No. 4 Roboria, sec. 41-9s-3w. Drlg. sh.&L. 3,783 ft.

Crusader Pet., Inc., No. 1 E. H. Grace, sec. 45-9s-2w. Drlg. sh. 1,190 ft.

Glassell & Glassell No. 2 McFarland, sec. 41-9s-2w. Drlg. sh. 5,518 ft.

Glassell & Glassell No. 3 McFarlain, sec. 41-9s-3w. T.D. 7,112 ft.; 7-in. csg. 6,898 ft.; tstg.

Glassell & Glassell No. 4 Trushell, sec. 42-9s-3w. Drk.

Gulf Ref. Co. No. 39 Arnaudit, sec. 47-9s-2w. R.U.

Jolly Pet. Co. No. 2 McFarlain, sec. 41-9s-2w. Bldg. drk.

Ladak Oil Co. No. 2 Jennings-Clement, sec. 46-9s-2w. Drlg. gumbo 1,010 ft.

M. P. O'Meara No. 1 Moresi, sec. 41-9s-2w. Drk.

Jolly Pet. Co. No. 5 Jennings-Haywood, sec. 46-9s-2w. Drk.

Reiter Foster Oil Co. No. 2 Crusel, sec. 42-9s-2w. Drlg. sh. 1,787 ft.

Shell Pet. Corp. No. 3 Community, sec. 40-9s-2w. Spd.

Stanolind O. & G. Co. No. 19 Houssiere-Latrelle, sec. 47-9s-2w. T.D. 1,222 ft.; run surf. csg.

Superior Oil Co. No. 8 Leckelt, sec. 42-9s-2w. Drlg. sdy. sh. 4,478 ft.

Superior Oil Co. No. 7 Leckelt, sec. 42-9s-2w. Drlg. sdy. sh. 4,417 ft.

Superior Oil Co. No. 4 Jennings-Haywood, sec. 41-9s-2w. Drlg. sdy. sh. 5,627 ft.

Superior Oil Co. No. 3 Moresi, sec. 41-9s-2w. T.D. 6,748 ft.; stuck D.S.; sdtrkg. 5,038 ft.; drlg. sd. 5,236 ft.

Lafitte—Jefferson Parish

Texas Co. No. 7 L.L.E., sec. 20-17s-24w. Drlg. sh.&L. 7,762 ft.

Texas Co. No. 2 Milling, sec. 20-17s-24w. T.D. 10,120 ft.; 7⅝-in. csg. 10,120 ft.; W.O.C.

Texas Co. No. 1 State-Bayou Normar sec. 28-17s-24e. T.D. 12,115 ft.; D.S. stuck.

Lake Barre—Terrebonne Parish

Texas Co. No. 141 State, sec. 40-21s-19e S.D. 3,744 ft.; sdtrkd.; drlg. Anh. 3,530 ft.

Lake Hermitage—Plaquemines Parish

Gulf Ref. Co. No. 7 Lafourche, sec 18s-25e. T.D. 8,129 ft.; sdy. sh. showing oil; 7-in. ch. csg. 8,074 ft.

Lake Pelto—Terrebonne Parish

Texas Co. No. 13 State, sec. 8-23s-18e. Drlg. wtr. sd. 5,311 ft.

Lake Washington—Plaquemines Parish

Humble O. & R. Co. No. 25 Cockrell, sec. 35-20-26e. Drlg. sh. 6,003 ft.

Lockport—Calcasieu Parish

Magnolia Pet. Co. No. 35 Miller, sec. 9-10s-9w. Drlg. sh. 4,612 ft.

Lake Long—Lafourche Parish

Fohs Oil Co. No. 2 State, sec. 65-17s-19e. R.U.

Fohs Oil Co. No. 3 State, sec. 65-17s-19e. 10¾-in. csg. 2,743 ft.; drlg. sd.&sh. 9,223 ft.

New Iberia—Iberia Parish

Wm. Hellis No. 3 Schwing, sec. 57-12s-7e. T.D. 5,019 ft.; P.B. and sdtrkd.; salt 5,509 ft.; P.B. 2,650 ft.; T.D. 3,949 ft.; 7-in. csg. 3,920 ft.; drlg. sh. 4,169 ft.

Texas Co. No. 3 Bryant, sec. 25-12s-7e. R.U.

Wm. Hellis No. 9 Bernard, sec. 54-12s-7e. T.D. salt 5,171 ft.; P.B. and sdtrkd.; S. D. 4,429 ft.

Wm. Hellis No. 10 Bernard, sec. 54-12s-7e. R.U.

Wm. Hellis No. 11 Bernard, sec. 54-12s-7e. Drlg. sh. 3,360 ft.; (cor.).

Wm. Hellis No. 6 Bullock-Burke, sec. 25-12s-7e. T.D. 4,817 ft.; P.B. and sdtrkd.; T.D. 4,769 ft.; P.B. 2,700 ft.; drlg. sh. 3,460 ft.

Texas Co. No. 1 Burke, sec. 56-12s-8e. R.U.

Texas Co. No. 4 Duke, sec. 26-2s-7e. T.D. 3,784 ft.

Texas Co. No. 7-B Hanzen, sec. 54-12s-7e. T.D. 4,546 ft.; P.B. 3,825 ft.; sdtrkd.; T.D. 4,791 ft.; 7-in. csg. 4,772 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 1 Antonohlenforst, sec. 45-8s-1e. Drlg. sh. 7,702 ft.

Humble O. & R. Co. No. 9-B Devilbiss, sec. 11-9s-4w. R.U.

Humble O. & R. Co. No. 1 L. Laumbrechet, sec. 4-9s-1e. Loc.

Roanoke—Jeff Davis Parish

Humble O. & R. Co. No. 4 Taylor, sec. 72-9s-4w. T.D. 8,848 ft.; 7-in. csg. 8,847 ft.

Sorrento—Ascension Parish

Sorrento Pet. Corp. No. 1 Lotta Lacey Barnard et al, sec. 16-10s-4e. R.U.

South Elton—Jeff Davis Parish

Stanolind O. & G. Co.-Amerada Pet. Corp. No. 3-B Calcasieu Natl. Bank, sec. 27-7s-3w. R.U.

South Jennings—Jeff Davis Parish

Loffland Bros. No. 1 Fontenot, sec. 16-10s-3w. Drlg. sdy. sh. 7,308 ft.

South Roanoke—Jeff Davis Parish

Union Sulphur Co. et al No. 1 T.R.S. Farms Co., sec. 23-10s-4w. T.D. 9,151 ft.; 7-in. csg. on bttm.; perf. csg. 8,500-63 ft.; tstd. 46 bbls. dist., 2,700,000 ft. of gas.

Starks—Calcasieu Parish

Capital Oil Co. No. 1 Lutcher-Moore, sec. 24-9s-13w. R.U.

Turnbull et al No. 2 Industrial Lbr. Co., sec. 19-9s-12w. T.D. 4,861 ft.; perf. csg. 4,508-18 ft.; no recovery on D.S.T.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 847 fee, sec. 29-9s-10w. T.D. 5,570 ft.; 7-in. csg. 5,570 ft.; sanded up; P.B. 4,064 ft.; T.D. 5,132 ft. in sdtrkd. hole; tstg.

Union Sulphur Co. No. 849 fee, sec. 29-9s-10w. T.D. 5,104 ft.; 7-in. 5,089 ft.

Union Sulphur Co. No. 850 fee, sec. 29-9s-10w. T.D. 5,149 ft.; I.P. 281 B.P.D.; ¼-in. ck.

Union Sulphur Co. No. 851 fee, sec. 29-9s-10w. Spd.

St. Martinsville—St. Martin Parish

Tide Water Oil Co. No. 1-B Smedes, sec. 18-11s-6e. Drlg. sdy. sh. 7,889 ft.

Valentine—Lafourche Parish

Pan American Prod. Co. No. 9-A Harang, sec. 8-17s-20e. T.D. 5,403 ft.; 7-in. csg. 5,363 ft.

Pan American Prod. Co. No. 10 Harang, sec. 7-17s-20e. T.D. 6,977 ft.; P.B. 3,000 ft.

Pan American Prod. Co. No. 11 Harang, sec. 8-17s-20e. T.D. 5,426 ft.; 7-in. csg 5,407 ft.; I.P. 511 B.P.D.; ¼-in. ck.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 4 Manhattan Fruit Co., sec. 26-21s-30e. Drlg. sh. 3,612 ft.

Vinton—Calcasieu Parish

Katina Oil Co. No. 2 Vincent, sec. 34-10s-12w. T.D. 4,140 ft.; sdtrkd.; drlg. sh. 2,600 ft.

Superior Oil Co. No. 1 Gray, sec. 4-11s-12w. 7⅝-in. csg. 3,907 ft.; drlg. sh.&L. 6,007 ft.

Vinton Pet. Co. No. 23 Vincent, sec. 34-10s-12w. Drlg. sh. 3,078 ft.

White Castle—Iberville Parish

T. D. Humphray No. 1 E. B. Adams, sec. 1-11s-12e. S.D. 6,067 ft.; P.B. and sdrkd.; drlg. 2,517 ft.

Shell Pet. Corp. No. 5 Shingle, sec. 12-11s-12e. 10¾-in. csg. 1,400 ft.; drlg. sh. 5,854 ft.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1e. T.D. 5,106 ft.; P.B. 2,785 ft.; sdtrkd.; drlg. sh. 2,323 ft.

Gulf Oil Corp. No. 1 Eucila Broussard, sec. 49-10s-2w. Drlg. sdy. sh.&L. 4,594 ft.

Humble O. & R. Co. No. 1 R. A. Sarver, sec. 35-10s-1e. Drlg. sh. 9,458 ft.

Magnolia Pet. Co. No. 1 Duson, sec. 14-8s-2w. Drlg. sh. 6,390 ft.

T. S. Markley No. 1 Daigle, sec. 19-7s-2e. Drlg. sh. 6,802 ft.; no report.

Calcasieu Parish

D. & D. Oil Co. No. 2 Lutcher-Moore, sec. 1-8s-13w. T.D. 8,340 ft.; run 9⅝-in. csg. drlg. plug.; csg. collspd.; drlg. sh. 7,655 ft. in sdtrkd. hole.

Federal Pet. Co. No. 1 Sabine Tram Co., sec. 25-18s-14w. R.U.

Union Sulphur Co. No. 1 J. A. Bel, sec. 10-10s-10w. 10¾-in. csg. 1,216 ft.; drlg. sh. 3,473 ft.

Wheeler Oil Corp. No. 2 Sch. Ld., sec. 16-9s-7w. R.U.

Cameron Parish

Humble O. & R. Co. No. 1 Miami Corp., sec. 8-14s-5w. 20-in. pipe set 188 ft.; drlg. sh. 3,630 ft.

Cameron Parish—Gulf of Mexico

Superior Oil Prod. Co. et al No. 1 State Gulf of Mexico, 3,800 ft. W, 6,200 ft. S of SE cor. of irregular sec 4-15s-8w. T.D. 317 ft.; prep. to drill ahead.

East Baton Rouge Parish

Cavalier Oil Co. No. 1 Elliott, sec. 3-9s-2e. T.D. 6,127 ft.; D.S. stuck.

Evangeline Parish

Schlicher Prod. Co. No. 1 J. A. Perkins, sec. 35. Loc.

Iberia Parish

Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. Drlg. sh. 6,380 ft.

Jefferson Parish

Triangle Oil Co. No. 1 Conroe, sec. 125-12s-11e. T.D. 3,752 ft.; D.S. stuck.

Jefferson Davis Parish

Continental Oil Co. No. 1 Faye, sec. 31-10s-3w. Loc.

Union Sulphur Co. No. 1 Calcasieu National Bank, sec. 12-9s-6w. Drlg. sh. 4,757 ft.

Lafourche Parish

Amerada Pet. Corp. No. 1 South Coast Corp., sec. 34-15s-19e. Core sh. 8,422 ft.

Gulf Oil Corp. No. 3 State P.P., sec. 38-23s-21e. Recvd. 1,000 ft. of oil on 6-min. D.S.T. at 6,749-6,846 ft.; 9⅝-in. csg. 6,832 ft.; drlg. 7,121 ft.; rec. 2,000 ft. P.L.O. on D.S.T. 6,958-70 ft.; T.D. 7,269 ft.; P.B. 6,971 ft.; drlg. sh. 7,535 ft.

Wm. Helis No. 2 City of New Orleans, sec. 19-23s-23e. Drlg. sh. 2,598 ft.

Plaquemines Parish

Gulf Oil Corp. No. 3 State (Jackson dist). Drlg. sdy. sh. 7,317 ft.

Humble O. & R. Co. No. 9 Orleans Levee Bd., sec. 12-18s-15e. Cg. gypsum 1,085 ft.

St. Bernard Parish

Southern Sulphur Co. No. 2 State Lake Borgne, sec. 38-14s-15e. 13⅜-in. csg. 303 ft.; S.D. 3,440 ft.

St. Martin Parish

Texas Co. No. 10 St. Martin, sec. 15-8s-7e. Drlg. sh. 6,911 ft.

St. Mary Parish

Texas Co. No. 1 State-Bateman Lake, sec. 21-16s-12e. 7⅝-in. csg. 10,515 ft.; drlg. sh. 11,717 ft.

Terrebonne Parish

Barnsdall Oil Co. No. 1 Dilbert, Stark & Brown Sur., sec. 10-16s-15e. Drlg. sh. 4,078 ft.

Vernon Parish

Castor Creek Drlg. Co. No. 1 Llano Del Rio, Inc., sec. 34-2n-9w. Drk.

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TEXAS

Week Ending October 16

GULF COAST FIELDS

Hastings—Brazoria County

Humble O. & R. Co. No. 1-D W. F. Beers, Perry & Austin Sur. T.D. 6,080 ft.; 5½-in. csg. 5,990 ft.
Humble O. & R. Co. No. 9-B Brown, Perry & Austin Sur. T.D. 6,080 ft.; I.P. 695 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 8 R. D. Hacen Wm. Henry Sur. T.D. 6,080 ft.; I.P. 642 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 1 Phillips, Perry & Austin Sur. T.D. 6,080 ft.; run csg.
Humble O. & R. Co. No. 8 South Texas Grain Co., Perry & Austin Sur. R.U.
Navarro Oil Co. No. 1-A Callahan, H.T.& B. Sur. No. 29. Cg. 5,500 ft.
Pearland Oil Co. No. 2 C. H. Alexander, H.T.&B. Sur. No. 28. Spd.
Producers Inv. Co. No. 1 C. H. Alexander H.T.&B. Sur. No. 28. T.D. 6,072 ft.; I.P. 27 B.P.H.; ¼-in. ck.
Producers Inv. Co. No. 2 Alexander, H. T.&B. Sur. No. 28. Cg. 5,600 ft.
Prod. Inv. Co. No. 4 Alexander, H.T.& B. Sur. No. 28. Drlg. sh. 1,150 ft.
Stanolind No. 6 Brown, H.T.&B. Sur. No. 29. R.U.
Stanolind O. & G. Co. No. 3-B W. H. Avitts, H.T.&B. Sur. Drk.
Stanolind O. & G. Co. No. 3 Barnett, H. T.&B. Sur. No. 29. T.D. 6,100 ft.; I.P. 576 bbls. per day, ¼-in. choke.
Stanolind O. & G. Co. No. 5 Blount, B T. Masterson Sur. T.D. 6,080 ft; 7-in. csg. 6,079 ft.; W.O.C.
Stanolind O. & G. Co. No. 7-B C. D. Brown T.D. 5,570 ft.; 7-in. csg. 5,569 ft.; I.P. 579 bbls. per day, ¼-in. choke.
Stanolind O. & G. Co. No. 3 Condon, H T.&B. Sur. No. 29. T.D. 5,886 ft.; perf. 5,883-85 ft.; I.P. 615 bbls. per day, ¼-in. choke.
Stanolind O. & G. Co. No. 4 Condon, H. T.&B. Sur. No. 29. T.D. 5,710 ft.; 7-in. csg. 5,708 ft.
Stanolind O. & G. Co. No. 11-B Curkett. H.T.&B. Sur. No. 30. T.D. 6,079 ft.; testing.
Stanolind O. & G. Co. No. 15-B M. Curkett. H.T.&B. Sur. No. 30. Core sh. 5,950 ft.
Stanolind O. & G. Co. No. 2 Drury, H.T. &B. Sur. No. 29. Drlg. sh. 4,030 ft.
Stanolind O. & G. Co. No. 14-B H. H. Ford, H.T.&B. Sur. No. 29. R.U.
Stanolind O. & G. Co. No. 2 Matushita H. Stevens Sur. R.U.
Stanolind O. & G. Co. No. 2 Matsushita, H. Stevens Sur. T.D. 5,930 ft.; 7-in. csg. 5,926 ft.; I.P. 527 bbls. per day, ¼-in. choke.
Stanolind O. & G. Co. No. 2-C H. Moore. R. A. Magee Sur. T.D. 6,080 ft.; I.P. 548 bbls. per day, ¼-in. choke.
Stanolind O. & G. Co. No. 3-C H. Moore. R. A. Magee Sur. T.D. 1,255 ft.; W.O.C.
Stanolind O. & G. Co. No. 4-C Moore, R. A. Magee Sur. R.U.
Stanolind O. & G. Co. No. 1 Peck, H.T.& B. Sur. No. 37. Drlg. sh. 3,043 ft.
Stanolind O. & G. Co. No. 1 Remley, H. T.&B. Sur. No. 28. Drlg. sh. 1,253 ft.
Stanolind O. & G. Co. No. 1 J. H. Sparks. H.T.&B. Sur. No. 29. T.D. 5,550 ft.; run 7-in. csg.
Stanolind O. & G. Co. No. 2 W. B. Thornton, H.T.&B. Sur. No. 29. T.D. 5,890 ft.; perf. csg. to test.
Stanolind O. & G. Co. No. 13 B. L. Turner, A.C.H.&B. Sur. Drlg. sh. 5,665 ft.
Stanolind O. & G. Co. No. 14 Turner, A. C.H.&B. Sur. No. 1. Drlg. sh. 2,270 ft.
Stanolind O. & G. Co. No. 16 Turner, A. C.H.&B. Sur. No. 1. T.D. 6,080 ft.; run csg.
Stanolind O. & G. Co. No. 17 Turner, A. C.H.&B. Sur. No. 1. R.U.
Stanolind O. & G. Co. No. 11 B. I. Turner. A.C.H.&B. Sur. No. 1. 10¾-in. csg. 1,242 ft.; T.D. 6,080 ft.; perf. csg. 6,058-53 ft.; I.P. 578 bbls. per day, ¼-in. choke.
Stanolind O. & G. Co. No. 2 Wagner. Drlg. sh. 3,785 ft.
Stanolind O. & G. Co. No. 9 Williams. A C.H.&B. Sur. T.D. 6,080 ft.; I.P. 204 bbls. per day, ¼-in. choke.
R. M. Stevens et al No. 1 Barnes, W. D. C. Hall Sur. R.U.

Lockridge—Brazoria County

Gulf Oil Corp. No. 4 Carrie Baker, J. W. Hall Sur. 10¾-in. csg. 1,332 ft.
Gulf Oil Corp. No. 1 Great Southern, E. D. Robertson Sur. T.D. 7,146 ft.; 9⅝-in. csg. 7,145 ft.
Kirby Pet. Co. No. 2 Carrie Baker, J. W. Hall Sur. 10¾-in. csg. 1,400 ft.; coring sand and L. 6,350 ft.
McCurdy and Johnson No. 1 State, Brazos River. Drlg. L. 4,498 ft.
Shell Pet. Corp. No. 2-B Ramsey, J. W. Hall Sur. Drlg. sh. 1,404 ft.
Shell Pet. Corp. No. 4 Ramsey, J. W Hall Sur. T.D. 6,373 ft.; testing.

Manvel—Brazoria County

Texas Co. No. 26 Houston Oil Field Assn., A.C.H.&B. Sur. No. 91. Core 5,100 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 2 Armstrong, Polly & Chance Sur. R.U.
Harrison & Abercrombie No. 1 Land and Barnes, C. Breen Sur. R.U.
Harrison & Abercrombie No. 1 Smith, C. Breen Sur. 9⅝-in. csg. 7,016 ft.; core sh. 10,127 ft.

Sandy Point—Brazoria County

H. J. DeArman No. 1 Edmundson, D. Talley Sur. T.D. 6,606 ft.; 7-in. csg. on bottom.
H. J. DeArman No. 3 Fite, D. Talley Sur. Drlg. sh. 6,472 ft.
Stanolind O. & G. Co. No. 2 Fite, D. Talley Sur. 9⅝-in. csg. 995 ft.

West Columbia—Brazoria County

Texas Co. No. 17 Abrams, Geo. Tennille Sur. T.D. 1,671 ft.; W.O.C.
Texas Co. No. 1 Gulf Oil Corp. fee, G. Tenille Sur. T.D. 5,483 ft.; testing.
Texas Co. No. 87 Hogg, Tennille Lge. Drlg. sand 1,821 ft.
Texas Co. No. 3 Phillips, G. Tennille Sur. T.D. 5,800 ft.; P.B. 5,670 ft.; 7-in. csg. 5,577 ft.; comp.; no gauge.
Texas Co.-Sterling O. & R. Co. No. 4 Phillips, Geo. Tennille Sur. R.U.

Calhoun—Heyser—Victoria County

Blanco Oil Co.-Buchanan No. 2 Dunnwoody, A. Sisneros Sur. Drlg. 5,088 ft.
Blanco Oil Co.-Buchannan No. 3 C. S. Dunnwoody, A. Sisneros Sur. Drk.
Geo. Echols No. 1 W. H. Bennett, J. Galban Sur. 10¾-in. csg. 915 ft.
George Echols No. 2 Lander, J. Galban Sur. T.D. 5,746 ft.; run csg.
Gulf Oil Corp. No. 1 Schultz, J. E. Galban Sur. T.D. 5,483 ft.; make drill stem test.
Gulf Oil Corp. No. 1 T. P. Traylor, J. E. Galban Sur. T.D. 5,580 ft.; 7-in. csg. 5,580 ft.; flwd. oil; gas-oil ratio high; prepare to deepen.
Humble O. & R. Co. No. 4 H. T. Marshall, A. Sisneros Sur. R.U.
Humble O. & R. Co. No. 16-B P. H. Welder, A. Sisneros Sur. T.D. 5,597 ft.; 5½-in. csg; P.B. 5,500 ft.; perf. csg. 5,483-87 ft.; made squeeze job.
Humble Oil-Plymouth Oil Co. No. 17-B Welder, A. Sisneros Sur. R.U.
Humble O. & R. Co. No. 18-B P. H. Welder, A. Sisneros Sur. R.U.
Magnolia Pet. Co. No. 3 O. M. Lander, J. E. Galban Sur. Loc.
Magnolia Pet. Co. No. 4 Lander, J. Galban Sur. Drlg. sh. 920 ft.
Normandie Oil Co. No. 7 J. G. Cook, A. Sisneros Sur. T.D. 5,755 ft.; salt wtr. sand; P.B.; W.O.C.
Normandie Oil Co. No. 8 J. G. Cook, A. Sisneros Sur. R.U.
Portilla Drlg. Co. No. 10-C P. H. Welder, A. Sisneros Sur. R.U.
Portilla Drlg. Co. No. 16-C P. H. Welder, A Sisneros Sur. T.D. 5,483 ft.; I.P. 280 bbls. per day, ¼-in. choke.
Sinclair Prairie Oil Co. No. 4 W. H. Bennett, A. Sisneros Sur. T.D. 5,749 ft.; 7-in. csg. 5,749 ft.; I.P. 171 bbls. per day, 9/64-in. choke.
Sun Oil Co. No. 3 W. N. Coffey, J. Galban Sur. Drlg. sh. 1,820 ft.

Anahuac—Chambers County

Humble O. & R. Co. No. 4 Broussard, sec. 63, H.&T.C. Sur. Core sd. 7,073 ft.
Humble O. & R. Co. No. 29 Middleton, sec. 58. T.D. 7,090 ft.; 5½-in. csg. 7,062 ft.; I.P. 640 bbls. per day, ¼-in. choke.
Humble O. & R. Co. No. 10 Zappe, sec. 51, H.&T.C. Sur. 9⅝-in. csg. 1,023 ft.; T.D. 7,080 ft.; run 7-in. csg.; I.P. 680 bbls. per day, ¼-in. choke.

Cotton Lake—Chambers County

Humble O. & R. Co. No. 1 Casey, S. Barrow Sur. R.U.
Joe Ludin et al No. 1 Lawrence, Solomon Barrow Sur. 10¾-in. csg. 541 ft.; T.D. 7,017 ft.; abd.
Texas Crusader Oil Co. No. 9 Kilgore, J. Townsend Sur. T.D. 6,290 ft.; run csg.

Seabreeze—Chambers County

Sun Oil Co. No. 3 Acorn, H.T.&B. Sur. 103. 13⅜-in. csg. 1,393 ft.; T.D. 8,494 ft.; cmtd. 9⅝-in. csg. on bttm.; T.D. 8,822 ft.; set retainer.
Sun Oil Co. No. 1 Jackson, Yarbo Sur. T.D. 8,830 ft.; 5-in. csg. 8,805 ft.; set screen; swbd. S.W.; cemented back to 7,663 ft.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 3 Silva, S. Burney Sur. T.D. 6,595 ft.; S.D.

Orchard—Fort Bend County

Gulf Oil Corp. No. 53 Moore, J. Frazier Sur. Drlg. sh. 5,217 ft.; no report.
Gulf Oil Corp. No. 55 J. M. Moore, J. Frazier Sur. R.U.

Dickinson—Galveston County

Atlantic Ref. Co. No. 4 Sealy Hutchins, P. G. Merritt Sur. Spd.
Frank Bennett No. 3 Way, P. G. Merritt Sur. R.U.
Coast Pet. Co. No. 8 Stewart, W. K. Wilson Sur. Spd.
J. K. Hughes Oil Co. No. 1 J. C. Ecret, W. K. Wilson Sur. Spd.
Humble O. & R. Co. No. 5-A Stewart, W. K. Wilson Sur. Drlg. sh. 3,812 ft.
Pure Oil Co. No. 2-A Sealy Hutchins, P. G. Merritt Sur. Drlg. sh. 3,618 ft.
Pure Oil Co. No. 1 Sam Levine, W. G. Banks Sur. R.U.
Stanolind O. & G. Co. No. 3 Damiani, W. K. Wilson Sur. T.D. 8,472 ft.; P.B.; T.D. 8,156 ft.; P.B. and sdtrkd.; T.D. 8,918 ft.; 7-in. csg. 8,846 ft.; I.P. 620 B.P.D., ¼-in. ck.

High Island—Galveston County

Stanolind O. & G. Co. No. 10 B.&O., M. Dunman Sur. 10¾-in. csg. 1,315 ft.; drlg. sh. 6,621 ft.
Stanolind O. & G. Co. No. 63 Cade, M. Dunman Sur. 10¾-in. csg. 1,311 ft.; drlg. sd.&L. 4,755 ft.

Hitchcock—Galveston County

N. W. Hunter No. 1 Stewart Title Guaranty Co., J. D. Moore Sur. T.D. 5,276 ft.; run Schlumberger.
Merit Oil Co. No. 1 Stewart, J. B. Moore Sur. 10¾-in. csg. 1,075 ft.; T.D. 5,204 ft.; sd. showing oil, gas and odor of S.W.

Silsbee—Hardin County

Republic Prod. Co.-Houston Oil Co. No. 22 Brooks, G. W. Brooks Sur. T.D. 6,920 ft.; 7-in. csg. 6,915 ft.; showed S.W.; P.B. 6,903 ft.; perf. 6,910-13 ft.; reset screen and lnr. Flowing 400 bbls. fluid per day, ¼-in. ck.
Republic Prod. Co.-Houston Oil Co. No. 23, G. W. Brooks Sur. T.D. 6,910 ft. 7-in. csg. 6,897 ft.
Republic Prod. Co.-Houston Oil Co. No. 24 Brooks, G. W. Brooks Sur. R.U.

Fairbanks—Harris County

Amerada-Stanolind O. & G. Co. No. 3 Carpenter. F. Fry Sur. R.U.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 M. E. Oates, Reels & Trobough Sur. Bldg. drk.

Friendswood—Harris County

Humble O. & R. Co. No. 2 Beamer, T. Choate Sur. T.D. 6,135 ft.; S.W. sd.; P.B. 6,100 ft.; 5½-in. csg. 6,032 ft.; flwd. 158 bbls. fluid, 26% S.W.; P.B. 6,070 ft.; I.P. 578 B.P.D., ¼-in. ck.
Humble O. & R. Co. No. 3 Beamer, T. Choate Sur. Drlg. sh. 3,425 ft.
Humble O. & R. Co. No. 1 Kiesling, T. Choate Sur. R.U.
National Standard Oil Co. No. 1 Coward, Perry & Austin Sur. Loc.

Humble—Harris County

John Deering No. 1 Wm. Lee, E. Rhule Sur., 5,000-ft. test. T.D. 5,440 ft.; fsg.

Mykawa—Harris County

H. C. Cockburn and Hargrove No. 1 Minnetex, Wm. Lovett Sur. T.D. 4,912 ft.; 5½-in. csg. 4,912 ft.; perf. 4,886-90 ft., 4,888-92 ft.; I.P. 175 B.P.D., ¾-in. ck.
H. C. Cockburn No. 2 Minnetex. Wm. Lovett Sur. Loc.

South Houston—Harris County

Stanolind O. & G. Co. No. 2 H. L. Bennett et al, Unit 13, H.T.&B. Sur. No. 6. T.D. 4,068 ft.; 5¾-in. csg. 4,051 ft.; P.B. 3,900 ft.; P. B. 1,561 ft.; T.D. 4,019 ft., 5¾-in. csg. 4,003 ft.; W.O.C.

Tomball—Harris County

Humble O. & R. Co. No. 2 Kleb, J. House Sur. T.D. 6,177 ft.; I.P. 21 B.P.D., ¼-in. ck.
Humble O. & R. Co. No. 1 R. Riesenberg, J. Pruitt Sur. T.D. 5,560 ft.; 5½-in. csg. 5,553 ft.; I.P. 163 B.P.D., ¼-in. ck.
Humble O. & R. Co. No. 1-B W. B. Sherrer, J. House Sur. Loc.
Humble O. & R. Co. No. 2 N. W. Stehly, J. Pruitt Sur. Drlg. sd. 1,380 ft.
Mabee Drlg. Co. No. 3 W. Baker, J. House Sur. T.D. 5,589 ft.; P.B. 5,551 ft.; perf. 5,560-66 feet.; I.P. 560 B.P.D., ¼-in. ck.
Shell Pet. Corp. No. 1 Alsobrook, J. Pruitt Sur. T.D. 5,575 ft.; I.P. 455 B.P.D., ¼-in. ck.
Shell Pet. Corp. No. Stokely, J. S. Smith Sur. R.U.
Texas Co. No. 4 Sam Lewis, J. Pruitt Sur. T.D. 5,552 ft.; P.B. 2,850 ft.; drlg. sh. 4,797 ft.

Ganado—Jackson County

Texas Co. No. 1 Mortg. Ld. & Inv. Co., Morris & Cummins Sur. No. 3. Drlg. 1,812 ft.

Amelia—Jefferson County

Humble O. & R. Co. No. 9 T. H. Crook, C. Williams Sur. T.D. 6,778 ft.; 5½-in. csg. 6,775 ft.; I.P. 651 B.P.D., ¼-in. ck.
Humble O. & R. Co. No. 10 Crook, C. Williams Sur. R.U.
Humble O. & R. Co. No. 5 Fitzgerald, C. Williams Sur. Drlg. sh. 5,942 ft.
Humble O. & R. Co. No. 1 S. L. Guinn, C. Williams Sur. R.U.
Humble O. & R. Co. No. 12 Guinn, C. Williams Sur. Drk.
Humble O. & R. Co. No. 12 Phelan, C. Williams Sur. Drk.
Humble O. & R. Co. No. 2-C Pinchback, C. Williams Sur. R.U.
Humble O. & R. No. 2-D Pinchback, C. Williams Sur. Loc.
Glenn H. McCarthy No. 3-B Longe, H. Williams Sur. T.D. 6,092 ft.; make D.S.T.
Stanolind O. & G. Co. No. 1 Keith, H. Williams Sur. Drlg. sh. 2,006 ft.
Stanolind O. & G. Co. No. 7 McCormick, H. Williams Sur. Drlg. sh.&sd. 1,520 ft.
Stanolind O. & G. Co. No. 8 McCormick, H. Williams Sur. Bldg. drk.
Sun Oil Co. No. 1 W. D. Gordon, A. Houston Sur. Drlg. drk.

Big Hill—Jefferson County

Stanolind O. & G. Co. No. 2 May Fitzhugh, Wm. McFadden Sur. T.D. 4,047 ft.; 10¾-in. csg. 4,040 ft.; T.D. 6,648 ft.; S.D.
Stanolind O. & G. Co. No. 4-A Pipkin. T.&N.O. Sur. Drlg. sd.&sh. 4,960 ft.

Fannett—Jefferson County

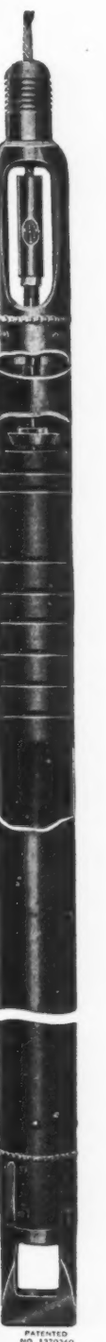
Gulf Oil Corp. No. 1 Junker-Spencer, W. H. Smith Sur. Drlg. sh. 6,467 ft.

LaBelle—Jefferson County

Sun Oil Co. No. 1 John Ward, 933 ft. S of No. 2 Broussard, Wm. Burton Sur 18⅝-in. csg. 109 ft.; 9⅝-in. csg. 8,538 ft.; 7-in. csg. 9,951 ft.; T.D. 10,147 ft.; cmtd. off bttm.; drld. cmt. to 10,060

IT'S THE Cat's Whiskers FOR CLEANING OUT!

MILLER SAND PUMP



Because the MILLER—the Sand Pump with the powerful suction action, in world-wide use, quickly cleans out the sand in your wells, permitting free flowing of the oil.

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS
To Meet Every Condition

- **BAILER BOTTOM** — With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.
- **SAND BOTTOM** — Used when tools are run and when well is shot to quickly remove loose material.
- **STAR BOTTOM** — Used for cutting the sand loose.
- **CHISEL BOTTOM** (In Pump) — With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Page 1186 COMPOSITE CATALOG

PATENTED NO. 1370340 NO. 1523804 NO. 1787390 NO. 1862628 NO. 1868828 NO. 2055664

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Branch Shops and Offices:
SAPULPA, OKLA. and KILGORE, TEX.

FOR SALE BY SUPPLY STORES EVERYWHERE

ft.; run 2½-in. tbg. to test; came in as gas well; C.P. 4,200 lbs.; killed; pulled tbg.; set cement retainer at 8,950 ft.

Nome—Jefferson County

Shell Pet. Corp. No. 4-A Texas Public Service Co., W. H. Aldridge Sur. R.U. as relief well; drlg. sh. 2,635 ft.
Sun Oil Co. No. 2 Tindall, A. Horton Sur. T.D. 5,659 ft.; 7-in. csg. 5,645 ft.; tstd. S.W.; drlg. deeper.

Cleveland—Liberty County

Gulf Oil Corp. No. 2-C Kirby Lbr. Co., J. Pleasants Sur. R.U.

Hankamer—Liberty County

Gulf Oil Co. No. 25 E. W. Boyt, Amos Allen Sur. T.D. 7,330 ft. per csg. 4,879-84 ft.; tstg.

Hardin—Liberty County

Jack Frazier No. 1 Buffam-Benning, J. Robeson Sur. R.U.
J. W. Frazier No. 1-B Lynott and Buffman, J. Robeson Sur. Drlg. sh. 2,015
Gulf Oil Corp. No. 1 V. B. Hinson, H. B. Johnston Sur. M.I.M.
Jameson-Bryon No. 1 W. B. Hinson, H. B. Johnson Sur. Loc.
Shell Pet. Corp. No. 1 Hanchey, H. B. Johnson Sur. R.U.
Strake Pet. Co. No. 1 W. T. Finley, A. B. Hardin Sur. 10¾-in. csg. 1,200 ft.; T.D. 7,637 ft.; run csg. to test.
Woodley Pet. Co. No. 3-B McMurty, H. B. Johnson Sur. T.D. 7,600 ft. 7-in. csg. 7,600 ft.; W.O.C.

Hull—Liberty County

Texas Co. No. 8 Barrow fee, J. Devore Sur. Drlg. sh. 4,420 ft.
Texas Co. No. 10 Hannah, J. Devore Sur. Drlg. sh. 2,118 ft.

South Call—Newton County

Houston Oil Co.-Republic Prod. Co. No. 2 Peavy-Moore Lbr. Co., sec. 42, H.&T.C. Sur. 16-in. pipe 58 ft. Drlg. 3,612 ft.

Bay City—Matagorda County

Hamman Expl. Co. No. 1 H. E. Thompson, Hall Sur. Core sd.&sh. 8,110 ft.; no report.

Buckeye—Matagorda County

United North & South Dev. Co., B. Cotton Sur. T.A.; loc.
United North & South Development Co No. 1 G.B.M., Cotton Lge. T.D. 8,667 ft.; 7-in. csg. 8,667 ft.; perf. csg. 7,850-80 ft.; S.D. Abd.

Markham—Matagorda County

Harrison & Abercrombie No. 1-B Kountze, H. Parker Sur. Drlg. sh. 2,412 ft. No report.

Palacios—Matagorda County

Atlantic-McCarthy No. 3 Foley Ld. Co., L. Goodwin Sur. Drk.
Atlantic-McCarthy No. 2 Palacios State Bank, L. Goodwin Sur. Core sh. 8,045 ft.
Glenn McCarthy No. 2 Foley, L. Goodwin Sur. T.D. 8,590 ft.; washing over tbg. at 8,265 ft.
Glenn McCarthy No. 1 W. M. Rohls, sec 10, L. Goodwin Sur. T.D. 8,843 ft.; stuck D.S. Abd.
Sun Oil Co. No. 1 Bay Shore Farms, Lewis Goodwin Sur. Drlg. sdy. sh. 10,225 ft.

Van Vleck—Matagorda County

Skelly Oil Co. No. 14-B Cobb, M. Cummins Sur. Drlg. sh. 8,312 ft.

Orange—Orange County

Tillery & Ryan No. 1 Chesson, Wm. Dyson Sur. 10¾-in. csg. 1,180 ft.; drlg. sh.&L. 4,015 ft.

Port Neches—Orange County

Texas Co. No. 6 W. H. Starks, W. E. Hall Sur. R.U.

Livingston—Polk County

Gem Oil Co. No. 5 Kavanaugh, A. Viesca Sur. R.U.

Segno—Polk County

Gulf Oil Corp. No. 8 Wing, sec. 14, I.&G. N. Sur. T.D. 6,269 ft.; recvd. 125 lbs. pres.; 6 thribbles oil on D.S.T. 6,258-69 ft.; core sdy. sh. 6,439 ft.
Humble O. & R. Co. No. 2 Kirby, P. Garcia Sur. Cr. sd. 5,125 ft.

Tomoconnor—Refugio County

Hewitt & Daugherty No. 58 Lambert, No report.
Hewitt & Daugherty No. 59 Lambert, Swisher Sur. No. 8. T.D. 5,910 ft.; run Schlumberger survey. No report.

Spurger—Tyler County

Republic-Houston Oil Co. No. 5 Hurd fee, N. Hurd Lge. Core sdy. sh. 7,590 ft.

Keeran—Victoria County

Gulf Oil Corp. No. 12 G. R. Keeran Est. Drlg. sh. 5,144 ft.
Union Oil Co. No. 7 Keeran, M. DeLeon Sur. Drlg. sh. 4,848 ft.

Tellener—Victoria County

Gulf Oil Corp. No. 1 Mahon and Buhler, W. C. Carroll Sur. T.D. 6,167 ft.; P.B. and sdtrkd.; drlg. sh. 5,780 ft.

Clay Creek—Washington County

Sun Oil Co. No. 7 Droeger, J. F. Perry Sur. T.D. 4,410 ft.; fsg.

Five Corners—Wharton County

Texas Co. No. 10-B Pierce Est., J. Caldwell Sur. Drlg. sh. 4,638 ft.

Louise—Wharton County

Pure Oil Co. No. 5 Lancaster, Morris & Cummings Sur. Drlg. sh. 3,512 ft.

Magnet—Wharton County

Atlantic Ref. Co. No. 5-B Cockburn, Smith & McKenzie Sur. T.D. 5,540 ft. perf. csg. 5,531-34 ft.; made squeeze job.
Atlantic Ref. Co. No. 6-B Cockburn, Smith & McKenzie Sur. Loc.
Humble O. & R. Co. No. 2 Cockburn, Smith & McKenzie Sur. 7-in. 5,534 ft.; T.D. 5,545 ft.; P.B. 5,538 ft.; rng. tbg. to test; flowing 5 bbls. fluid per hr., ⅛-in. ck.
Texas Crusader Oil Co. No. 2 H. C. Cockburn, Smith & McKenzie Sur. 10¾-in. csg. 1,155 ft.; T.D. 5,541 ft.; I.P. 142 B.P.D., ⅛-in. ck.
Texas Crusader Oil Co. No. 3 Cockburn, Smith & McKenzie Sur. Drlg. sh. 1,190 ft.

Pickett Ridge—Wharton County

Gilcrease Oil Co. No. 1 W. W. Duson, Gifford Sur. T.D. 1,086 ft.; run surf. csg.
Texas-Crusader Oil Co. No. 2 J. F. Kubella et al, G. C. Gifford Sur. 10¾-in. csg. 1,118 ft.; T.D. 4,710 ft.; 5½-in. csg. 4,663 ft. Comp. gas well, shut in.

Withers—Wharton County

Texas Co. No. 38-C Pierce, J. Caldwell Sur. T.D. 5,553 ft.; W.O.C.
Texas Co. No. 39-C Pierce, J. Caldwell Sur. 16-in. csg. 33 ft. W.O.C.
Texas Co. No. 3 Thompson, J. Caldwell Sur. Drlg. sh. 1,125 ft.

GULF COAST WILDCATS

Brazoria County

Pure Oil Co. No. 1 W. A. Smith, S. F. Austin Sur. R.U.

Chambers County

Merit Oil Co. No. 1 T. and M. Wright, C. Smith Sur. 10¾-in. csg. 1,302 ft.; T.D. 7,515 ft. 7-in. csg. 6,602 ft. prep. to test.

Fort Bend County

Windward Oil Co. No. 1 P. W. Sims, sec. 1, H.&T.C. Sur. 10¾-in. csg. 995 ft.; T.D. 6,199 ft.; abd.

Galveston County

R. R. Gray et al No. 1 Eidman, Anthony Hatch Sur. R.U.

Hardin County

Humble O. & R. Co. No. 1 Shone, S. R. Fisher Sur. T.D. 6,505 ft.; abd.
Humble O. & R. Co. No. 1-A Olive Stermberg, J. Taylor Sur. R.U.

Harris County

Medford and Burke No. 1 W. A. and O. C. Pruitt, Gilbert Brooks Sur. Drlg. sh. & L. 6,238 ft.

Jackson County

Magnolia Pet. Co. No. 1-A West ranch, R. Musgquez Sur. Bldg. drk.

Jefferson County

Shell Pet. Corp. No. 1 W. P. McFaddin, S. A. Pace Sur. No. 2. Bldg. road.

Liberty County

Humble O. & R. Co. No. 2 Sabine Tram, Malinda Whittington Sur. (Devers area). T.D. 9,007 ft.; fsg.

Matagorda County

Sun Oil Co. No. 1 Fred Robbins, C. H. Vandeveer Sur. R.U.

Refugio County

Hogan Oil Co. No. 1 Kelley, M. & A. Roache Sur. Drlg. sh., core 4,390 ft.

San Jacinto County

J. W. Oliphant et al No. 12 Gibbs Bros. Lbr. Co., C. McKem Sur. R.U.

Victoria County

Stanolind O. & G. Co. No. 1 Henderson & Pickering, E. Benavides Sur. T.D. 6,884 ft. sh.

Trinity County

Gossage-Green and Thompson No. 1 R. E. Thompson, J. A. Hickey Sur. Drk.

Waller County

J. Brian Eby et al No. 1 Wm. Rice Institute, H. Stephens Sur. Loc.
Humble O. & R. Co. No. 1-A South Tex. Dev. Co., Wm. Hillhouse Sur. Loc.

Washington County

K. D. Harrison and C. E. Starr No. 1 Charles and Wm. Ellerman, Wm. Bridges Lge. 13-in. csg. 290 ft.

Walker County

G. C. Dixon No. 1 Morgan, J. Ford Sur. Drk.
W. B. Gossage et al No. 1 Carey Ld. & Dev. Co., D. McDonald Sur. S.D. 2,220 ft.

Wharton County

Buch & Holt No. 1 Kaener, F. C. Reynolds Sur. 10¾-in. csg. 620 ft.; drlg. sh. 5,180 ft.

S. W. TEXAS WILDCATS

Atascosa County

Brown & Bell No. 1 Atkins, 920-ac. tr., Sur. 3, Sd. 4,638-54 ft.; S.G.; drlg. 5,387 ft.
L. W. Steiren No. 1 Crawford, 4 mi. W of Anchorage. Sd. 2,480-90 feet.; S.O.; set csg. to test.

Bastrop County

J. W. Bibb No. 1 Lentz, F. Wilkenson Sur. S.D. 1,030 ft.
Harvey & Henderson No. 1 Erhard, 175-ac. tr., Knight & White Surs. D.&A. 3,639 ft.

Bee County

Dougherty No. 3 Hicks, Blk. 39, Uranga Gr. Sd. 3,657-70 ft.; D.S.T. rec. 180 ft. oil and mud; W.P. 80 lbs.; comp. 32 B.P.D. on ¼-in. ck.

Bell County

W. H. Vernor No. 1 McQueen, 9 mi. S of Belton. Drlg. sh. 2,107 ft.

Caldwell County

B. C. Armstrong No. 1 Bell, S. Seal Sur. Drld. plugs 2,465 ft.; stdg. with 1,100 ft. fluid in hole; comp. 18 B.P.D. on pump; T.D. 2,447 ft.
C. O. Burgin No. 1 Mebane, F. B. Lee Sur. Drlg. 1,693 ft.
Chiquita Oil Co. No. 3 Moses, Hinds Sur. Drlg. 2,207 ft.
Fain Gilliock No. 1 Kelly, Berry Sur. Spd.
Lanning & Coffield No. 1 Trammell, 150 ft. N line, 750 ft. E line lse., Guadalupe College Sur. To P.B.; R.U. to pmp.
Carl Riddle No. 1 Moore, Benton Sur. Drlg. 1,321 ft.

Comal County

J. R. Yates No. 2 Heidrich, Heidrich ranch. Drlg. 941 ft.

DeWitt County

Dirks Bros. No. 1 Clark, Santos Sur. D.&A. 4,525 ft.

Dimmit County

Teas & Maryland Corp. No. 1 McKnight, Blk. 13, sec. 23, S.D. 3,019 ft.
H. F. Wilcox O. & G. Co. No. 4 Light ranch, Blk. 9, sec. 97. Drlg. sh. 2,897 ft.

Duval County

Hamil & Smith No. 1 Gruy, Sur. 155. Drlg. 1,817 ft.
Magnolia Pet. Co. No. 16 Herbst, Sur. 65. Drlg. 3,136 ft.
Magnolia Pet. Co. No. 1 Ruiz, Sur. 190. Drlg. 2,187 ft.
Navarro Oil Co. No. 1 Bennett. Drlg. 4,351 ft.
J. J. O'Hern No. 1-F Benavides, Sur. 170. Drlg. 3,532 ft.
Penn-Palangana Oil Co. No. 2 Schallert, Sur. 239. S.D.; T.D. (cor.) 365 ft.
Slaughter & Hugle No. 1 Hunter Est., 80-ac. tr., sec. 515. D.S.T. 3,318-60 ft. rec. 650 ft. slightly gas-cut mud in 17 min., and 750 ft. brackish wtr.; T.D. 3,360 ft.
Tsesmalis & Shipman No. 2 Canales, Lot 75. O.W.W.O.; old T.D. 4,005 ft.; showed gas; will rework.

Edwards County

Dan Auld No. 1 Henderson, sec. 46, Blk. "E." S.D. 10 ft.
Amon G. Carter No. 1 Sweeten, SE¼, Blk. 2, Sur. 49. Drlg. 5,231 ft.

Frio County

Pagenkopf & Jamieson No. 1 Houston Est., 2,254-ac. tr., J. Figuerroa Sur. S.O. 2,610-03 ft.; set csg. to test 7-in. at 2,480 ft.; swbg.; S.O.&G. and wash wtr.; T.D. 2,651 ft.; set csg. prep prod. test.

Goliad County

Rual Swiger No. 1-B Wood, J. Shearn Sur. M.I.M.

Guadalupe County

Carver & Ellison No. 1 Rumpf, Burman Sur. Drlg. chalk, S.O. 2,585 ft.
Ellmag Oil Co. No. 1 Hardiman, Dikes Sur. T.D. 2,201½ ft.; rng. csg.
Mason Aigeli No. 1 Schubert, Esnaurizer Sur. T.D. 1,081 ft.; P.B. 890 ft.; D.&A.

Hidalgo County

Atlantic Ref. Co. No. 1 American Rio Grande. Drlg. sh. 6,432 ft.
Y. & B. Oil Co. No. 1 Waite, Tr. 382, Los Jidos Gr. Washing down; T.D. 4,050 ft.; prep. to D.D.; drlg. sh. 4,083 ft.

Jim Hogg County

Darby Pet. Co. No. 1-B Holbien, Sh. 3, Blk. 5, sec. 7, San Animas Gr. D.S.T. 1,778-89 ft.; showed 320 lbs. gas in 1¾ min.; tried to blow out; killed; comp. 3,000,000 ft. gas; perf. 1,782½-88 ft.

Jim Wells County

H. M. Hill et al No. 1 Kuether, Lots 70 and 75, sec. 52, Haldeman Subd. Spdg.
Howell et al No. 1 Talbot, 181-ac. tr., Lavaca Gr. Spd.
Magnolia Pet. Co. No. 7 Seeligson, 10,433-ac. tr., Los Jaboncillos Gr. Sd. S.G. 6,488-6,503 ft.; D.S.T. 6,488-6,503 ft.; rec. 60 ft. dist.; 1,000 lbs. W.P. 10-min.; took short core; well blew out and burned; S.I. and killed; cleaned hole; set 7-in. protective csg. 6,794 ft.; cg. 6,926 ft.

Karnes County

DeGraff & Reele No. 1 Cochran, McConnel Lge. Drlg. 1,487 ft.
Herbert Aid No. 1 Union Life Ins. Co. Sd. 2,131-43 ft.; slight odor gas; tstd. S.W.; T.D. 2,500 ft.; D.&A.
Ivan Howard No. 1 Moczygemba, Erasmo Seguin 5, League Gr. Top sd. S.O. 2,159 ft.; oil sd. 2,174-78 ft.; S.D., W.O. csg.

Kendall County

Landon & Peffley No. 1 Seidensticker, Sur. 257, Chorcon Gr. S.D. 530 ft.

Lee County

Jas. E. Pederson No. 1 Turner, David Hudson Sur. S.O.&G. 6,140-80 ft.; sdtrkd. at 4,600 ft. and drld. to 6,132 ft.; S.O.&G.; set csg. 6,021 ft.; acdzg. with 20-bbl. load; when opened well flwd. 20-bbl. head and went dead; swbd. oil and wtr.; acd.; to put on pmp.; S.D.

Live Oak County

Chiquita Oil Co. No. 1-A Taylor-Lark, Scrugham Sur. Set csg. 972 ft.; W.O.C.
L. Glasscock No. 1 Bonham, Simmons Subd., Blk. 45. Spd.
Chas. Hanna et al No. 1 Wedding, 200-ac. tr., Haughy Sur. S.D. 1,900 ft.
Loma Oil Co. No. 2 Schwartz, Mark Killely Sur. Cg. 1,159 ft.
Marzo Oil Co. No. 1 Alexander, Ayres Sur. Drlg. 356 ft.
Ranco Oil Corp. No. 1 fee, 660 ft. NW and SW lines, Pointevent Sur. 3. Drk. stdg.
F. D. Salter No. 3 fee, Osborn Sur. D.&A. 941 ft.
Simms Oil Co. No. 3-B Reagan. Spd.
Standard Oil Co. of Texas No. 1 Nicholson, Thompson Sur. Drlg. 3,035 ft.
Unit Pet. Co. No. 1 Atkinson, Ayres Sur. T.D. 1,350 ft.; D.&A.

Maverick County

Rio Dev. Co. No. 4 State Bank & Trust Co., Sur. 2. Drlg. sh. 897 ft.
Wellington Oil Co. No. 1 Chittam, 330 ft. N line, 2,310 ft. W line, sec. 129, Blk. 7, T.D. 3,287 ft.; flwd. intermittently at rate of 10 B.P.H. and went dead; acidized; swbd. 7 B.P.H. oil; R.U. to pmp.; T.D. 3,287 ft.

McMullen County

Alabama Minerals Corp. No. 1 Gordon, O.W.W.O.; T.D. 2,537 ft.; set csg. 1,960 ft.; drlg. plugs.
Coyle & Bedwell No. 1 Two Rivers Rnch. Co., sec. 60, S.D. 10 ft.
V. G. Schimmel No. 1 Kountz, E.T.&R.R. Sur. Drlg. 55 ft.
C. C. Shumway No. 11 Shiner, sec. 6, Shumway Subd. T.D. 980 ft. Reaming.

Medina County

Adams et al No. 1 Kreisle, Sur. 908, R.U.
R. S. Bolling No. 1 McMenemy, Sur. 33½, R.U.
M. L. Walker No. 1 Riff, Hans Sur. No. 43. R.U.

Nueces County

Culton & Meador No. 1 Bailey Est., Blk. 65, J. Elliff Subd., Joaquin Lopez de Herrera Sur. M.I.M.
Mills Bennett Prod. Co. No. 1 Johnson, sec. 125, Pauls Subd. Set csg. 544 ft.; W.O.C.
Sannix Oil Co. No. 1 Nesloney, 760-ac. tr., Casa Blanca Gr. Set 10¾-in. csg.; W.O.C.
Seaboard Oil Corp. No. 1 John M. Luby, 466 ft. S and W lines, Blk. 1, Sh. 1, Luby Subd. D.S.T. 5,069-79 ft. rec. 330 ft. P.L.O. and 30 ft. mud, 185 lbs. W.P. in 10 min. Sd. 5,072-79 ft.; rng. Schlumberger to set csg.
Southern Minerals Corp. No. 2 King, Blk. 6, R. King Farm Lots. D.S.T. 4,020-33 ft.; rec. 640 ft. oil, 850 ft. S.W. in 20 min. at 35 lbs. W. P.; drlg. 5,109 ft.

San Patricio County

Argo Oil Corp. No. 1 Soehnge, 159.66-ac. tr., Blk. 11, Schleicher & Joseph Subd., Delgado Gr. T.D. 4,962 ft.; top sd. 4,957 ft.; well tried to blow out; killed to deepen.
Danray Oil Co. No. 1 Davis, Tr. 5, Wm. Boyd Sur. Set csg. 7,117 ft.; perf. 7,080-90 ft. and 6,540-44 ft.; rec. S.W.; D.&A., T.D. 7,117 ft.
H. J. Porter No. 1 Schmalsteig, sec. 9, Paul Subd. Cg. 4,717 ft.

Starr County

Calderoni-James-Foliette No. 1 Rodrigues, Blk. 6, Sh. 56. Porc. 80. Set 4½-in. csg. 1,483 ft.; T.D. 1,511 ft.; P.B. T.D. 1,756 ft.; S.D.; W.O.O.
Collins No. 1 Guerra, Sh. 6, San Jose Gr. R.U.
Dodd Tr. No. 1 Wardner, Vela Sur., Porc. 84. S.D., T.D. 480 ft.
G. E. Dodd No. 1 Wood Est. Set 10-in. surf. csg. 80 ft.; W.O.C.
Sun Oil Co. No. 1 Guerra, Jose Antonio Guadardo Sur., Porc. 111. D.&A. 2,213 ft.
Transwestern Oil Co. and Davenport No. 3 Slick, sec. 527. Drlg. 6,643 ft.

Travis County

W. O. Caffey No. 1 Bremond, 104.5-ac. tr., Santiago del Valle Sur. Drlg. 416 ft.
W. O. Caffey No. 1 Meister, Conrad Sur. Drlg. 58 ft.
Henshaw Bros. & Davis No. 1 Garcia, Tr. 40, Porc. 89. D.&A.: T.D. 2,901 ft.
J. E. Mills No. 1 Washington, Navarro Sur. S.D. 1,150 ft.

Webb County

Adams & LeFevre No. 1 Garcia, Blk. 27, Hughes Subd., Sur. 592. Perf. 1,860-66 ft.; rec. S.W.; P.B. 1,670 ft.; W.O.C.; T.D. 2,500 ft. D.&A.
French Oil Corp. No. 1 Benavides, Sur. 704. Cg. 2,246 ft.
O. W. Killam No. 1 Garcia, Blk. 26, Los Ojuelos Sur. R.U.
Randon Oil Co. No. 1 Palmer, Sur. 474. Drlg. sd. 2,017 ft.

Willacy County

Magnolia Pet. Co. No. 1 Armendiaz, Sh. 4, San Juan de Carricitos Sur. Drlg. 4,916 ft.

Wilson County

Diamond Halff Oil Co. No. 1 Houston, 200-ac. tr., Reynolds Sur. Cg. L. 5,023 ft.
Arnold, Dink, Stone & Haley No. 1 Black, 1,102.3-ac. tr., hrs. of Juan and Simon Arocha Sur. Drlg. sh. 217 ft.
Pat Higgins No. 1 Higgins, Rodrigues Sur. 237. Set surf. csg. 30 ft.; W.O.C.

S. W. TEXAS PROVEN

Lamar—Aransas County

Barnsdall Oil Co. No. 1 Kate Edwards, Lot 87, Lamar Townsite. R.U. to work over; O.T.D. 7,996 ft.

McCampbell—Aransas-San Patricio Counties

Atlantic Ref. Co. No. 1-F McCampbell, Blk. 28. Set csg. at T.D. 7,130 ft.; washing in.
Atlantic Ref. Co. No. 8-C McCampbell, Lot 1, Blk. 42. Drlg. 4,590 ft.
Atlantic Ref. Co. No. 4-B Murray, Lot 9, Blk. 12. Sd. 7,092-96 ft.; set csg. 7,096 ft.; W.O.C.
Atlantic Ref. Co. No. 2-B Porterfield, Lot 11 Blk. 8. T.D. 7,135 ft.; comp. 35 B.P.D.
Atlantic Ref. Co. No. 3-B Porterfield, Lot 8, Blk. 11. Rng. scrn. and lnr.; T.D. 7,135 ft.; comp. 33 B.P.D. on ⅛-in. ck.
Atlantic Ref. Co. No. 4-B Porterfield, Blk. 10, Lot 10. Drlg. 680 ft.
Atlantic Ref. Co. No. 5-B Porterfield, Blk. 1. Drlg. 5,026 ft.
Atlantic Ref. Co. No. 1-C Porterfield, Lot 8, Blk. 12. Cg. 8,291 ft.
Atlantic Ref. Co. et al No. 1-D Porterfield, Lot 10, Blk. 13. Cg. 6,707 ft.
Buckingham Oil Co. and Tom Graham No. 2-D Porterfield, Lot 11, Blk. 9. Fsg. 6,762 ft.
Buckingham Oil Co. No. 4-B McCampbell, Lot 16, Blk. 40. O.W.W.O.; old T.D. 7,430 ft.; R.U. to D.D.
Buckingham Oil Co. No. 5-A McCampbell, Lot 4, Blk. 39. O. sd. 6,544-48 ft.; reperf. csg. 6,544-47 ft.; comp. 120 B.P.D. fluid 50-60 pct. S.W. on 3/16-in. ck.; T.D. 7,135 ft.
Buckingham Oil Co. No. 12-A McCampbell, Blk. 42. Perf. 7,095-7,119 ft.; S.W. & O.; pigd. to reperf.
Buckingham Oil Co. No. 1-B McCampbell, Lots 13 and 14, Blk. 40. O.W.W.O.; old T.D. 6,557 ft.; sdtrkd. 6,351 ft.; drlg. 6,497 ft.
Buckingham Oil Co. No. 1-C McCampbell, 33.8-ac. tr., Blk. 27. T.D. 7,150 ft.; prep. rework.
Franston Oil Co. No. 1 Murray, Lot 7, Blk. 37. R.U.
Tom Graham No. 1 Edwards, Lot 16, Blk. 7. Set csg. on 7,100 ft. sd.; drlg. plugs.
Landreth Prod. Co. No. 7-A McCampbell, Lot 1, Blk. 39. R.U.
Neill & Peterson No. 2-A McCampbell, Lot 1, Blk. 43. Drlg. 5,477 ft.
Shasta Oil Co. No. 1 Davis, Lot 16, Blk. 9. Set csg. 7,130 ft.; W.O.C.
Guy Warren & Carmos Drlg. Co. No. 1 Kleineck, Lot 12, Blk. 9. Drlg. 3,570 ft.

Carroll—Bastrop County

Nelson Puett No. 7 Carroll Est., 535.75-ac. tr., A. Mays Sur. T.D. 2,299 ft.; set 5½-in. csg. 2,140 ft.; washing.

Plummer—Bee County

W. C. McBride No. 2-B Plummer, Chessman Sur. Oil sd. 3,055-55½ ft. and 3,057-58 ft.; set 5½-in. csg. 3,058 ft.; squeeze job.

North Dale—Bastrop County

Marts & Beavens No. 1 Lackey, Gray Sur. Rmg. 2,225 ft.
Ralph R. Ogden No. 1 Riddle, K. Gray Sur. R.U.

West Tuleta—Bee County

Salt Dome Oil Co. No. 3 Tuleta Merchantile Co., SW¼, sec. 10, Wragley Subd., Uranga Gr. Jtg.; T.D. 3,079 ft.; flwg. 5 B.P.D. oil and slugs mud; W.O.O.

Gas Ridge—Bexar County

W. H. Kennon No. 1 Oliver. T.D. 3,464 ft.; S.D.

Alta Mesa—Brooks County

Standard Oil Co. of Texas No. 1 Mestina, Lse. No. 1. O.W.W.O.; old T.D. 4,277 ft.; prep. P.B. to 3,562 ft.
Standard of Texas No. 5 Mestina, Lease No. 1. 7-in. csg. set 3,220 ft.; T.D. 5,505 ft.; perf. 4,513-20 ft.; plugged and reperf. 4,520-24 ft.; plg. tbg. to reperf.; tstg.
Standard Oil Co. of Tex. No. 9 Mestina Lse. No. 1, La Mestina and Gonzalena Sur. T.D. 2,463 ft.; set 7-in. csg. 2,450 ft.; comp.; 148 B.P.D. on ½-in. ck.; sd. 2,451-64 ft.
Standard Oil Co. of Texas No. 10 Mestina, Lse. No. 1, La Mestina & Gonzalina Sur. R.U.

Alta Verde—Brooks County

Bishop & Woods No. 1 Maupin, Sur. 311 P.B. 1,114 ft.; perf. csg. 1,094-1,108 ft.; tstg.
Bishop & Woods No. 1 Powers, 378-ac. tr., Sur. 311. Spd.

Branyon—Caldwell County

B. & T. Pet. Co. No. 2 Magee, J. A. Neill Sur. T.D. 2,295 ft.; set 5½-in. csg. 2,003 ft.; W.O.P.
Johnson Drlg. Co. No. 2 Lockhart State Bank, John Roe Sur. Set 7-in. csg. 1,916 ft.; drlg. 2,127 ft.
Mar-Jon Oil Co. No. 3 Fulps, J. Neill Sur. Comp.; 600 B.P.D.; T.D. 2,063 ft.
Martell Pet. Co. No. 2 Clark, J. R. Miller Sur. Drlg. 1,815 ft.
Martell Pet. Co. No. 2 Young, J. R. Miller Sur. Stdg. 2,242 ft.; set 5½-in. csg.
Second National Oil Co. No. 1 White. Swbd. O.&G.; 7-in. csg. 2,080 ft.
Second Nation Oil Co. No. 2 White, J. Pinchback Sur. Set surf. csg. 20 ft.; W.O.C.

Buchanan—Caldwell County

Edwill Oil Co. No. 4 Browne, Chas. M. Cannon Sur. R.U.
McAlester Fuel Oil Co. No. 2 Miears, Chas. M. Cannon Sur. Set csg. 1,942 ft.; T.D. 2,501 ft.; comp.; 41 B.P.D. on pmp.
McAlester Fuel Oil Co. No. 3 Miears, Cannon Sur. Set surf. csg. 20 ft.; drlg. Buda 2,326 ft.
Ralph Ogden No. 1 Dinges, Damon Sur. Set 7-in. csg. 1,861 ft.; T.D. 2,205 ft.; rng. tbg.
Lewis-Patton Co. No. 1 Brown, Cannon Sur. Drlg. 1,915 ft.
Potter-Snowden No. 5 Medlin, Cannon Sur. Drlg. 1,927 ft.

Burdett Wells—Caldwell County

F. & W. Drlg. Co. No. 1 Rodenberg, Guadalupe College Sur. Drlg. 1,017 ft.

Dunlap—Caldwell County

Lanning & Coffield No. 1 Rodenberg, Guadalupe College Sur. R.U.
Chas. Schreiner No. 1 Moody, Seal Sur. S.D.; T.D. 2,313 ft.

Larremore—Caldwell County

Louis Crouch No. 5 Jolley, C. Crenshaw Sur. Comp.; 20 B.P.D. on pmp.; T.D. 1,280 ft.
Spokane O. & G. Co. and Okla. O. & G. Co. No. 3 Starkey, C. Crenshaw Sur. S.D. 890 ft.

Salt Flat—Caldwell County

Louis Crouch No. 1 Davis, Hinds Sur. R.U.
E. J. Koeugh No. 1 Tiller, Hinds Sur. R.U.
Pummel & Brady No. 1 Jackson, S. Morris Sur. S.D. 1,500 ft.
Elimag Oil Co. No. 1 Pope, J. P. Rains Sur. W.O. rig.
Hantho-Nelson, Inc., No. 1 New, James Hinds Sur. Drlg. 2,391 ft.

Benavides—Duval County

Arkansas Fuel Oil Co. No. 7 Rossi, Santos Flores Gr. Set 7-in. csg. 4,773 ft.; T.D. 4,786 ft.; W.O.C.
Benedum & Trees Oil Co. No. 7 Puig, San Andres Gr. Sd. 4,803-10 ft.; set csg.; drlg. plugs.
Benedum & Trees Oil Co. No. 8 Puig, 750-ac. tr., San Andres Gr. Oil sd. 4,794-4,800 ft.; set csg. 4,794 ft.; W.O.C.
Blanchard No. 1 Puig, Blk. 59, Sur. 238. O.W.W.O.; T.D. 5,425 ft.; well went dead; squeezed; perf. 5,401½-05 ft.; W.O.C.
Bridwell Oil Co. No. 4 Anciro, Flores Gr. No. 25. Rng. csg. 4,753 ft.; sd. 4,727-53 ft.; comp.; 170 B.P.D. on ⅛-in. ck.
Bridwell Oil Co. No. 5 Anciro, Santos Flores Gr. No. 25. R.U.
Burton Drlg. Co. No. 1 Southland Life, Blk. 12, Sweden Farm Lots. Prep. spd.
L. Glasscock No. 1 Flores, sec. 9, Sweden Farm Lots. T.D., lg. 4,805 ft.; S.I.
Frank Gravis Oil Co. No. 5-A Puig, 100-ac. tr., San Andres Gr. Cg. 4,717 ft.
Gravis & Doran No. 6 Puig, San Andres Gr. No. 24. Sd. 4,828-33 ft.; set 7-in. csg. 4,819 ft.; comp.; 92 B.P.D. on ⅛-in. ck.
Gravis & Doran No. 7 Puig, San Andres Gr., sec. 24. R.U.
Hiawatha O. & G. Co. No. 4 Southland Life, sec. 12, Flores Gr. No. 25. Drlg. 4,126 ft.
Navarro Oil Co. No. 3 Owens, 100-ac. tr., Blk. 19. T.D. oil sd. 4,777 ft.; completg.
Reynosa Oil Co. No. 6 Wilson, 80-ac. tr., sec. 9. Set csg.; T.D. 4,788 ft.; W.O.C.
Russ Pet. Co. No. 8 Farias, Santos Flores Gr. No. 25. Set csg. 4,848 ft.; T.D. 4,816 ft.; oil sd.; comp.; 230 B.P.D. on 17/64-in. ck.
Russ Pet. Co., Inc., No. 9 Farias, sec. 9, Sweden Farm Lots. R.U.
Russ Pet. Co., Inc., No. 2 Rossi, sec. 10, Sweden Farm Lots. Prep. spd.
Standard Oil Co. of Kans. No. 5 Parr, 80-ac. tr., San Andres Gr. R.U. and S.D.
Standard Oil Co. of Kans. No. 10 Rossi Santos Flores Gr. Set 7-in. csg. 4,775 ft.; T.D. sh. 4,791 ft.; W.O.C.
Standard Oil Co. of Kansas No. 4 Southland Life, sec. 12, Santos Flores Gr. Drlg. 441 ft.
Sun Oil Co. No. 1 Barton Est., 1,056.1-ac. tr., Surs. 425, 6 and 24, San Andres Gr. Cg. 5,608 ft.
Woodley Pet. Co. No. 1 West, Sweden Farm Lot No. 10. R.U.

Colmena—Duval County

Conservative Oil Co. No. 3 D.C.R.C., Sur. 47. R.U.

Driscoll—Duval County

Continental Oil Co. No. 19 Sevier, Sur. 448. Drlg. 587 ft.

Hoffman—Duval County

Central Producers, Inc., No. 5-A Wendt, Sur. 43. Sd. 2,291-2,315 ft.; comp.; 2,412 B.P.D.
Cox & Hamon No. 3 Green-Yoakum, Sur. 118. Comp.; 100 B.P.D.; sd. 2,713-18 ft.
Cox & Hamon No. 6 Green, Sur. 118. Sd. 2,712-16 ft.; set csg. 2,714 ft.; W.O.C.
Cox & Hamon No. 11 Green, Sur. 118. Drlg. 2,037 ft.
Cox & Hamon No. 10 Robles, sec. 68 Sd. 2,691-99 ft.; set csg. 2,691 ft.; T.D. 2,699 ft.; tstg.
Gulf Stream Oil Co. No. 5-B Hoffman, Sur. 118. Drlg. 1,917 ft.

Kohler—Duval County

Bunn Bros. & Coates No. 2-A Peters, Gibson Sur. 397. Sd. 1,835-45 ft.; set csg.; W.O.C.

Labbe—Duval County

Magnolia Pet. Co. No. 10 Labbe, Sur. 1. Drlg. 556 ft.

Lundell—Duval County

Govt. Wells Oil Co. No. 8 Lundell, Sur 140. Comp.; 145 B.P.D. on ¼-in. ck.; oil sd. 1,513½-27 ft.; 7-in. at 1,514 ft.

Piedra Lumbre—Duval County

Magnolia Pet. Co. No. 8 D.C.R.C., Sur. 203. R.U.
Magnolia Pet. Co. No. 22 D.C.R.C., Sur. 100. T.D. 1,990 ft.; oil sd. 1,985-90 ft.; comp.; 72 B.P.D.; jtg.
Tarver & Putnam No. 2 Ruiz, Sur. 127. Drlg. 1,293 ft.

Seven Sisters—Duval County

Pan American Prod. Co. No. 8-A Welder, Sur. 381. Comp.; 120 B.P.D. on ⅜-in. ck.; T.D. 2,566 ft.
Rudco O. & G. Co. No. 1 Ellis, Sur. 308. R.U.
S. and D. Daube No. 41 Campos, Sur. 224. Sd. 2,694-2,701 ft. and 2,729-30 ft.; odor oil; tstg.
Sun Oil Co. No. 3 Rodriguez, Sur. 222. T.D. 2,828 ft.; swbg.; clg. hole.

Sweden—Duval County

Hiawatha O. & G. Co. No. 3 Miller, sec. 24, Flores Gr. No. 25. Drlg. 3,856 ft.

Thomas-Lockhart—Duval County

Lockhart Bros. No. 3 Parr, Sur. 277. T.D. 4,698 ft.; swbg.
Taylor Pet. Co. No. 1 Parr, 40-ac. tr., Sur. 279. Drlg. 4,823 ft.

Pearsall—Frio County

Amerada Pet. Corp. No. 8 Halff & Oppenheimer, S. A. Ditch Sur. 1,104 (W.O.). Set 7-in. protective csg. 10,341 ft.; stdg. 10,745½ ft.

Darst Creek Extn.—Guadalupe County

Kenedy & Crowley No. 1 Anderson, J. R. Robinson Sur. T.D. 2,619 ft.; drlg. plugs.
Riddle Oil Co. No. 2 Williams, DeWitt Sur. No. 13. Set csg. 2,378 ft.; S.D.
Trio Oil Co. No. 2 Willie, Darst Sur. Drlg. sh. 1,557 ft.

Luling—Guadalupe-Caldwell Counties

Diamond Halff Oil Co. No. 1 McKean, Nancy Reavill Sur. Drlg. 2,015 ft.
Magnolia Pet. Co. No. 9 Branyon, Reaville Sur. Set csg. 2,155 ft.; W.O.C.
Millican & Norman No. 2 Lampkin, J. Henry Sur. Set csg. 1,715 ft.; treating; T.D. 2,116 ft.
Muckelroy & Schame No. 1 King, N. Reaville Sur. M.I.M.
Potter P. L. Co. No. 1 Cartwright, J. Henry Sur. T.D. 1,991 ft.; T.C. 1,781 ft.; 5½-in. csg. 1,770 ft.; clg. hole.
Spokane O. & G. Co. No. 1 Hibbits, J. Henry Sur. Drlg. sh. 521 ft.
Rio Bravo Oil Co. No. 17-L Merriweather, John Henry Sur. Spd.
Taylor Ref. Co. No. 2 Harris, H. Cottle Sur. Crevice 2,002-06 ft.; stdy. 2,006 ft.

Staples—Guadalupe County

W. W. Lincoln No. 2 Gabriel, Geo. Allen Sur. T.C. 695 ft.; T.D. 710 ft.; 7-in. csg. 695 ft.; R.U. to pmp.

LaBlanca—Hidalgo County

Dee Davenport No. 1 Hidalgo Wtr. & Imp. Dist., Lot 16, Engleman Subd., Smith Sur. 262. Drlg. sh. 7,417 ft.
Dee Davenport No. 2 Swallow, Clyde Fennis Ld. Co. Sur. Set 7-in. csg. 7,939 ft.; perf. 7,908-12 ft.; clg.; showing gas and wash wtr on ⅛-in. ck.; S.I.
Gulf States Oil Co. No. 2-A Delta Orchards, Lot 3, Sur. 94. Drlg. 2,416 ft.

Alworth—Jim Hogg County

French Oil Corp. No. 6 Garcia, Sur. 269. T.D. 1,063 ft.; flwg. 1 B.P.D.; sds. 1,034-36 ft. and 1,038-49 ft.; tstg.

West Premont—Jim Wells County

Smith & Story No. 1 Dansard, C Lots 16 and 17, sec. 72. M.I.M.
Homer Presnall No. 1 Holmes, Lots 59 and 70, sec. 76. T.D. 2,259 ft.; D.S.T. rec. 50 ft. oil 4½ min.; set csg. 2,257 ft.; W.O.C.

North Pettus—Karnes County

Magnolia Pet. Co. No. 19 Porter, B.&B. Sur. Set surf. csg. 203 ft.; W.O.C.

South Burnell—Karnes County

Luling O. & G. Co. No. 6 Boyce, Still Sur. No. 8. Drlg. 2,516 ft.
Pettus Oil Ref. Co. No. 5-A McKinney, R. C. Ballard Sur. Comp.; est. 150 B.P.D.; T.D. 3,605 ft.

Ezzell—McMullen County

Harry Ezzell No. 1-A fee, sec. 23. Oil sd. 1,504-14 ft.; set 7-in. csg. 1,532 ft.; W.O.C.
Harry Ezzell No. 2-A fee, sec. 23. Sd. 1,471-81 ft.; set csg.; W.O.C.
Harry Ezzell No. 3-A fee, sec. 23. Drlg. 1,018 ft.
R. P. Holland No. 2 Matkin, Gloreck Sur., Lot 2433, Simmons Sur. Sd. 1,478-86 ft.; set csg.; W.O.C.
E. M. Jones No. 21 Ezzell, sec. 23. Oil sd. 1,486-92 ft.; set 7-in. csg. 1,516 ft.; W.O.C.
E. M. Jones No. 2-B Ezzell, NE¼, SE¼, sec. 20. Sd. 1,505-11 ft.; set 7-in. csg. 1,541 ft.; W.O.P.
E. M. Jones No. 3-B Ezzell, sec. 20. Drlg. 97 ft.
E. M. Jones No. 4-B Ezzell, sec. 20. Sd 1,515-16 ft.; perf. 1,514-25 ft.; R.U. to pmp.
Sure Oil Co. No. 1 Gayle, Simmons Sur. Drlg. 1,273 ft.

South Callihan—McMullen County

Bill Howard No. 9 Claunch, Hely Sur. Drlg. 1,157 ft.

Loma Alta—McMullen County

J. T. Lanier No. 1 Hagist, SE¼, N½, Sur 481. S.D. 2,513 ft.

Taylor—Medina County

R. J. Taylor No. 2-A fee. D.&A.; T.D. 315 ft.

Agua Dulce—Nueces County

Heep Oil Corp. No. 1 Purl, 440-ac. tr., Subd. No. 2. Sd. 5,724-29 ft.; drlg. ahead 6,337 ft.
Texon Drlg. Co. No. 2 Elliff, 3,054-ac. tr., Longorio Sur. T.D. 6,668 ft.; sd. 6,637-68 ft.; reperf. 6,663-68 ft.; tstd. gasoline; to drill deeper.
Union Prod. Co. No. 1 Simmons, 1,000-ac. tr., Lopez de Juan Sur. R.U.
Union Prod. Co. No. 1 Schroeder, sec. 87, Paul Subd., Driscoll ranch. Set csg. 8,230 ft.; W.O.C.

Clara Driscoll—Nueces County

O. W. Killam No. 4 Ellick, sec. 109. T.D 3,906½ ft.; tstg.
Mid-Continent Pet. Corp. No. 4 Sevier, R. Russell Sur. Skdg. on.

S. Clara Driscoll—Nueces County

Sun Oil Co. No. 1 Flynn, sec. 110, Paul Subd., Driscoll ranch. D.S.T. 3,928-38 ft.; rec. 2,140 ft. fluid incl. 450 ft. P. L.O. and 1,540 ft. oily mud and 120 ft. S.W.; sd. 3,930½-38½ ft.; perf. 3,930-33 ft.; swbg.

Flour Bluff—Nueces County

Humble O. & R. Co. et al No. 2 Collier. Drlg. 5,750 ft.
Humble O. & R. Co. et al No. 4 Cordz, Blk. 45. Set csg. 6,663 ft.; comp.; 146 B.P.D. on ¼-in. ck.
Humble O. & R. Co. et al No. 2 Dunn, Lot 8, Blk. 41. Drlg. sh. 1,050 ft.
Humble O. & R. Co. et al No. 6 Gulden, Blk. 47. Set csg. 6,667 ft.; W.O.C.
Humble O. & R. Co. et al No. 1 Smith, Lot 9, Blk. 49. Drlg. sh. 2,030 ft.
Humble O. & R. Co. et al No. 8 Webb, Lot 9, Blk. 56. Drlg. sh. 6,623 ft.

London—Nueces County

Wellington Oil Co. and Seaboard Oil Corp. No. 1-B Lehman, NW¼, SE¼, sec. 25. T.D. 5,000 ft.; S.D.; M.I. heavy rig.

Luby—Nueces County

Seaboard Oil Corp. No. 4 Luby, Blk. 4, Sh. 2, Luby Subd. Drlg. 3,977 ft.
Stanolind O. & G. Co. No. 3 McCann, 500-ac. tr. D.S.T. 4,331-47 ft.; rec. 550 ft. oil; W.P. 190 lbs. 10 min.; sd. 4,336-47 ft.; drlg. 4,379 ft.

Saxet Heights—Nueces County

Wm. Brady No. 2 Whalen, Villareal Sur. Oil sd. 4,043-56 ft.; set 5½-in. csg. 4,065 ft.; clg. pits.

Saxet—Nueces County

Bryant & Howell No. 4 Plachy, Sur. 25. Sd. 4,161-75 ft.; set 5½-in. csg. 4,250 ft.; W.O.C.
Donico Prod. Co. No. 6 Donigan, 80-ac. tr. Drlg. 4,677 ft.
J. E. Freeman No. 1 Scott, Sur. 500. No report.
Greta Oil Co. No. 5 Humphries, Stevens Sur. T.D. 6,790 ft.; set csg. 4,132 ft.; plugged perf. 4,055-75 ft.; P.B. to reperf.
Greta Oil Corp. No. 1 Isensee, Sur. 404. Drlg. 2,675 ft.
Greta Oil Corp. and Morgan No. 8 Morgan-Clark, Sur. 405. Set csg. 1,100 ft.; W.O.C.
Hiawatha O. & G. Co. No. 14 Hutchins-Stillwell, Sur. 500. R.U.
Houston Oil Co. No. 5-A Harrell, Sheppard Farm Lots. Drlg. 6,585 ft.
Houston Oil Co. No. 9-A Harrell, Lot 24, Sheppard Farm Lots. Drlg. 4,375 ft.
Houston Oil Co. No. 4 Hunter, 75-ac. tr., sec. 8, Rge. 5. T.D. 4,868 ft.; set lnr. and screen.
Houston Oil Co. No. 28 Morgan, 493.63-ac. tr., sec. 7, Rge. 6. Set csg. 4,550 ft.; comp.; 168 B.P.D. jtg. on ¾-in. ck.; sd. 4,543-50 ft.
Houston Oil Co. No. 29 Morgan, sec. 7, Rge. 6. Set surf. csg. 207 ft.; W.O.C.
H. H. Howell No. 6 Hutchins, 80-ac. tr., Sur. 416. Set csg. 6,975 ft.; perf. 6,900-18 ft.; squeezed and reperf. 6,253-57 ft.; comp.; 144 B.P.D.; 5/32-in. ck.
H. H. Howell No. 8 Hutchins, 80-ac. tr., Sur. 416. Cg. 6,982 ft.
J. K. Kepley No. 8 Donigan, sec. 7, Rge. 6. Set csg. 4,400 ft.; W.O.C.
Maryland Corp. and Renwar Oil Corp. No. 2 Stillwell-Sagarino, Sur. 500. Oil sd. 6,726-37 ft.; bd. sh.; S.O.&G. 6,740-49 ft.; T.D. 6,749 ft.; perf. 6,744-48 ft.; washing in.
Maryland Corp. and Renwar Oil Co. No. 2-B Morgan, Sur. 415. T.D. 6,238 ft.; sd. 6,111-20 ft.; cutting stuck D.S.
North Star Oil Co. No. 12-E Morgan, sec. 405. Drlg. 6,617 ft.
Pan American Prod. Co. No. 2-B Sagarin, Sur. 500. O.W.W.O.; old T.D. 5,827 ft.; R.U. to W.O.
Pan American Prod. Co. No. 5 Solar Sevier, Sur. 311. Drlg. 6,421 ft.
Phillips Pet. Co. No. 7 Morgan, S½, sec. 405. Oil Sd. 6,895-6,910 ft.; set csg.; perf. 6,880-82 ft.; squeezing.
Richardson Pet. Co. No. 3 Harrell, Blk. 33, Sheppard Farm Lots. Drlg. 6,815 ft.
Richardson Pet. Co. No. 7 Perkins-Lagasse, Blk. 25, Sheppard Farm Lots. Drlg. 4,562 ft.
Richardson Pet. Co. No. 13 Quiros, Sur. 311. Cg. 6,807 ft.
Richardson Pet. Co. No. 11 Sedwick, 184-ac. tr., Dunn Sur. 312. Drlg. 6,797 ft.
Southern Minerals Corp. No. 9 Ocker, 205-ac. tr. Set 7-in. csg. 4,863 ft.; sd. 4,862-71 ft.; fsg.
Texon Drlg. Co. No. 5 Vance, Gallagher Sur. O.W.W.O.; old T.D. 6,924 ft.; drlg. 7,192 ft.

Stratton—Nueces County

Camp. Prod. Co. No. 2 Wardner, sec. 13. M.I.M.

Sullivan—Nueces County

Lockhart et al No. 1 O. Puri, Lot 2, sec. 7, Ross Peters Subd. No. 2. Sd. 7,032-52 ft.; P.B. and sdtrkd.; T.D. 7,404 ft.; to P.B.

Midway—San Patricio County

Phillips Pet. Co. No. 4 Ivey, sec. "K," Pauls Subd. Sd. 5,286-5,355 ft.; perf. 5,344-46 ft.; washing.

Sun Oil Co. No. 2 Coggin, sec. 82. Oil sd. 5,333-35 ft.; set csg.; W.O.C.; T.D. 5,-338 ft.

Plymouth—San Patricio County

Heep Oil Corp. No. 8-F Welder, sec. 46. Drlg. 7,301 ft.

Humble O. & R. Co. No. 3 Godwin, Lot 1, sec. 23. Drlg. sh. 653 ft.

Plymouth Oil Co. No. 84-C Welder, sec. 70. Drlg. 521 ft.

Plymouth Oil Co. No. 85-C Welder, sec. 70. Drlg. 4,787 ft.

Sun Oil Co. No. 3 Roundtree, sec. 34, Lot 4. Perf. 5,636-37 ft.; pmpd. 30 bbls. oil, 50 bbls. S.W.; sanded up; reworking.

Taft Field—San Patricio County

Greta Oil Corp. No. 1 Pullin, Blk. 1, Lot 4. Drlg. 4,527 ft.

Humble O. & R. Co. No. 3 Godwin, 90-ac. tr., Lot 1, sec. 23. Drlg. sh. 4,366 ft.

Barbacoas—Starr County

K. E. Merren No. 1-A S.C.C.C., Blk. 34, Lambeth Subd., Porc. 89. Set csg. at T.D. 5,640 ft.; sd. 5,470-91 ft.; C.O.; perf. 5,390-5,417 ft. and 5,417-24 ft.; flwg. dist. and S.W.; C.I.C.P. 1,800 lbs. stdg.

Ricaby—Starr County

Conan Wood No. 1 Wardner Est., Porc. 84. T.D. 523 ft.; gas sds. 425-39 ft. and 441-61 ft.; S.W. sd. 498-503 ft.; blew out making 500,000 ft. gas and S.W.

Dean Bros. No. 1 Valadez, Porc. 84. Sd. 1,863-72 ft.; set 5½-in. csg. 1,872 ft.; T.D. 1,873 ft.; perf. 1,868-72 ft.; 1,200 ft. fluid mostly oil in hole; to put on pmp.

McAlester & Espenlaub No. 1 Wood, Porc. 84. Drlg. 1,107 ft.

Sun Oil Co. No. 5 Wardner, Vela Sur., Porc. 84. Set surf. csg.; W.O.C.

Carolina-Texas—Webb County

E. J. Purl et al No. 2 Garza, Sur. 48. Sd. 2,100-07 ft.; T.D. 2,119 ft.; S.D.

Cole—Webb County

French Oil Corp. No. 3 Perez, Sur. 1007. Oil sd. 1,987½-93½ ft.; set csg. 1,987 ft.; W.O.C.

O. W. Killam No. 58 Bruni, sec. 8, Blk. 12. Drlg. sh. 278 ft.

Magnolia Pet. Co. No. 3 Valdez, Valdez Sur., Blk. 8. T.D. 3,808 ft.; rng. S.J.

Killam—Webb County

O. W. Killam No. 3 Garcia-Villareal, Sur. 1009. Comp.; 20 B.P.D. on pmp.; T.D. 2,009 ft.

O. W. Killam No. 4 Garcia, Sur. 786. Drlg. 779 ft.

O. W. Killam No. 21 Garcia, Owens Sur. 786. Drlg. sh. 559 ft.

O. W. Killam No. 22 Garcia, Sur. 786. Comp.; 75 B.P.D. on ¾-in. ck.; oil sd. 1,977½-84 ft.

Rowan & Hope No. 3 Laurel Bros., Sur. 1006. T.D. 1,943 ft.; 7-in. csg. 1,934 ft.; W.O. pmp.

Lopez—Webb-Duval Counties

C. H. Andrus No. 1 Billings, Sur. 10. Set 5½-in. csg. 2,262 ft.; W.O.C.

O'Hern—Webb County

J. Gier and Kone Prod. Co. No. 2 Peters, SW¼, Sur. 38. R.U.

Oilton—Webb County

Bridwell Oil Co. No. 1 Martin, Sur. 2167. Comp.; 75 B.P.D.; pmp.; sd. 1,928-39 ft.

Bridwell Oil Co. No. 6 Martin, Sur. 2167. Drlg. 517 ft.

Gypsy Oil Co. No. 1-A Martin, Sur. 3267. Drlg. 819 ft.

Gypsy Oil Co. No. 13 Martin, NE¼, Sur. 458. Comp.; 127 B.P.D.; sd. 1,991-92 ft.

Hamil & Smith No. 13 Martin, Sur. 337. Comp.; 80 B.P.D.; ¾-in. ck.; sd. 1,880-90 ft.

Hamil & Smith No. 16 Martin, Sur. 2167. Comp.; 130 B.P.D.; sd. 1,874-84 ft.

Hamil & Smith No. 19 Martin, Sur. 2167. R.U.

Magnolia Pet. Co. No. 1 Sprague-fee, Blk. 16, Sur. 2161. Rng. lnr.; T.D. sd. 1,881 ft.

Mills Bennett Prod. Co. No. 1 Martin, sec. 458. T.D. 1,984 ft.; D.&A.

Morgan & Kirkwood No. 2 Juarez, Blk. 23, Sur. 1105. R.U.

Morgan & Kirkwood No. 10 Juarez, Blk. 23, Sur. 1108. Oil sd. 1,951-56 ft.; rng. Schlumberger.

Porter & Blanchard No. 2 Laurel Bros., Sur. 1006. D.&A. 2,001 ft.

Rowan & Hope No. 4 Laurel, Sur. 1106. Oil sds. 1,908-13 ft. and 1,931-36 ft.; set csg.; W.O.C.

Superior Oil Co. No. 1 Laurel, Sur. 719. Rmg. for D.S.T. 2,102 ft.

Laßal Vieja—Willacy County

Shell Pet. Corp. No. 2 Yturria, Sh. 64, Carricitos Gr. Cg. sh. 6,667 ft.

Texas Co. No. 109 Jennings, Cerrito Blanco Gr. Drlg. sh. 617 ft.

Escobas—Zapata County

Dulup Oil Co. No. 28 Trevino, 326-ac. tr., Sh. 25, Cg. 1,234 ft.

Texas Co. No. 108 Jennings, Cerrito Blanco Gr. Set csg. 1,250 ft.; comp.; 00 B.P.D.; T.D. 1,256 ft.

Lopeno—Zapata County

Wm. Winn No. 1 Ramirez, Sh. 2, Jamieson Subd., Porc. 19. R.U.

NORTH TEXAS WILDCATS

Archer County

Hamon, Hanlon-Buchanan, Inc., et al No. 1 W. P. Ferguson, sec. 2, H.&G.N. Sur. 6⅝-in. 3,900 ft.; S.L. 3,967-90 ft.; shot 120 qts.; C.O. bridge; treating with acd.

Baylor County

Hampton et al No. 1 A. G. Cochrell, sec. 2,404, T.E.&L. Sur. S.D.O. 1,385 ft.

Clay County

W. Gant No. 5 C. M. Worsham, D.L.&C.A. Sur. 1073. Set 6⅝-in. 3,900 ft.; tstg. S. L. 3,376-94 ft., "Lane gun."

Healdton O. & G. Co. No. 1 Wallace, Belcher Subd. Drlg. 300 ft.

Cooke County

W. O. Russell No. 1 J. W. Sherrill, Wm. Phelps Sur. A-821. Drlg. 1,450 ft.

Denton County

W. C. Curry et al No. 1 G. F. Owens, N. Rudder Sur. A-1060. S.D.O. 620 ft.

Bruce Lee No. 1 Boyles, S. Ross Sur. A-112. Drlg. 1,700 ft.

Scroggins et al No. 1 S. M. Freeman, Bradshaw Sur. A-104. Drlg. 2,100 ft.

Foard County

O. P. Burnham No. 1 Ward, sec. 21, H.& T.C. Sur., Blk. 8. C.O. 2,275 ft.

Grayson County

Denver P. & R. No. 1 Cannon, A. Berry Sur. A-130. Drlg. 4,660 ft.

Wichita County

Hammon Hanlon Buchanan, Inc., No. 1 A. F. Fassett, sec. 1, E.T.R.R. Sur. Drlg. 2,900 ft.

Jack E. Kadane No. 1 C. A. Mangold, P. Castleman 35-A. Drlg. 1,780 ft.

LeBus No. 1 J. F. Miller, W. R. Eaves Sur. A-447.Set 6⅝-in. 3,610 ft.; drlg. S.L. 3,715-3,813 ft.

W. B. Omohundro No. 1 First Natl. Co., sec. 28, W.V.F.L. Sur. 6⅝-in. 3,687 ft.; W.O.C.

Patterson et al No. 1 B. C. Ellis, J. Waldschmidt Sur. A-792. S.D.O. 930 ft.

Felix Payne No. 1 P. R. Pace, R. J. Scott Sur. A-253. Spud. & S.D.

E. J. Stump No. 1 M. P. Bishop, L. Netherley Sur. A-240. Set surface pipe; drlg. 500 ft.

E. J. Stump et al No. 1 J. and J. Waggoner, W. R. Eaves Sur. A-753. 7-in cmtd. 3,806 ft.; S.L.&O.S. 3,840-93 ft.; tstg.

Clyde Texan Oil Fields Co. No. 1 A. W. Burnside, John M. Sharp Sur. A-262. Drlg. 3,900 ft.

Wilbarger County

Barry & Hayes No. 1 McGill, sec. 3, Blk. 9, H.&T.C. Sur. Drlg. 3,030 ft.

King Oil Co. No. 1 R. L. Castleberry, sec. 68, H.&T.C. Sur., Blk. 14. O.S. 2,164-90 ft.; tstg.

W. Little No. 1 A. P. Morris, sec. 3, H.T. &C. Sur., Blk. 14. S.D. 700 ft.

Wise County

W. D. Dilbeck No. 1 J. I. Wilkins, E. Stephens Sur. S.D. 600 ft.

Latex Oil Co. No. 1 C. R. Smith, J. Couch Sur. A-104. Showing gas 3,843-45 ft.; 6⅝-in. 3,943 ft.; S.S.O.&G. 3,952-95 ft.; shot 60 qts.; C.O. bridge; tstg.

Young County

F. W. Bennett No. 2 R. V. Tidwell, J. L. Blackwood Sur. A-1378. B.O.S. 3,249-3,360 ft.; T.D. 3,698 ft.; C.O. after shot.

T. D. Humphrey No. 1 S. R. Ragland T.D. Kuykendall Sur. Sd.&L. 3,773-97 ft.; C.O.

L. A. Long No. 1 F. A. Burnett, E.G. Rector Sur. No. A-239. 6⅝-in. 3,815 ft.; W.O.C.

Lupton & Long No. 1 W. I. Gilmore, J. Gilmore Sur. A-2135. H.F.W. 4,105 ft.; S.D.O.

W-K Royalty Co. No. 1 J. A. Wright, J. N. Taylor Sur. A-1243. Drlg. 3,640 ft.

E. C. TEXAS WILDCATS

Anderson County

Humble O. & R. Co. No. 5-A Southern Pine Lbr. Co. Top Woodbine 4,284 ft.; drlg. 5,620 ft.

Angelina County

John Coates No. 1 J. L. Russell, Jose Morino Sur., E of Diboll. Drk.

Cherokee County

Merica Oil Co. No. 1 Cherokee Dev. Co., A. J. Acker Sur., 2 mi. E of Maydelle. Drk.

E. H. Moore, Inc., No. 1 Chronister Lbr. Co., 3 miles NE of wells. Tr. 71, Blk. 33, John Durst Gr. Drlg. 2,906 ft.

Falls County

McCleod et al No. 1 F. Bolton, J. R. Cockrill Sur., 4 mi. NW Rosebud. S.D. 1,031 ft.

Freestone County

J. K. Hughes No. 1 Foster C. E. Gray Sur., 5 mi. SE of Kirvin. Top Austin 3,025 ft.; drlg. 3,200 ft.

C. E. Rossiter No. 1 J. P. Fulton in J. P. Fulton Sur., 2½ mi. E of Donie. S.D. 956 ft.

Gregg County

Humble O. & R. Co. & Gulf O. Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi. SW of Longview Trinity test. El. 272 ft.; Glen Rose 4,876 ft.; drlg. 5,629 ft.

Henderson County

American Liberty Oil Co. et al No. 1 La-Rue & Johnson, Blk. 11, P. Jackson Sur., 2 mi. W of LaRue. El. 464 ft.; drlg. 7,150 ft.

S. Hunt et al No. 1 Dillard, H. Jeffries Sur., 16 mi. N of Trinidad. El. 361 ft.; Paluxy 4,689 ft.; cg. 4,820 ft.

E. B. LaRue et al No. 1 Breedlove & Mills, J. Dunn Sur., 330 ft. S and E of 232½-ac. tr., 5 mi. NW of LaRue. M.I.M.

Wm. McDougall No. 1 Trinity, F. & S. Land Co., Blk. 1, H.&T.C. Sur. Drk.

Tide Water Assoc. et al No. 2-C McElreath & Suggett, W. P. Wyche Sur. T.D. 9,255 ft.; P.B. to 7,900 ft.; to test.

Hopkins County

V. A. Hughes No. 1 B. and T. Hardaway, Wm. A. Irwin Sur., 3 mi. E of Ridgeway, el. 579 ft. Georgetown 4,517 feet.; drlg. 4,676 ft.

Houston County

Grin-Jackson No. 2 H. F. Moore, H. Master Sur., 2 mi. SE of Crockett. Drlg. 2,975 ft.

Leon County

Kelly & Fox No. 1 Bryant, A. M. Coultern Sur., 1 mi. E of Marquez. S.D.

Limestone County

C. L. Brown No. 27 N. B. Boyd, R. B. Longbotham Sur., 3 mi. S of Wortham. Loc.

Pure Oil Co. No. 16-T Kendrick, P. Varella Sur., Mexia field. S.D. 8,214 ft.

Stanolind O. & G. Co. No. 1 T. Norris, in Thresher Sur., 5 mi. N of Kosse; 6,500-ft. test; El. 528 ft.; drlg. 4,300 ft.

Nacogdoches County

G. C. Collier and Corley No. 1-A A. T. Mast, 14 mi. SW of Nacogdoches, T. S Lambert Sur., 750 ft. N of No. 1. El. 198 ft.; drlg. 4,228 ft.

Navarro County

Nowlin et al No. 1 Easterling, J. Mayor Sur., 2 mi. S of Chatfield. R.U.

Mrs. Jane Robinson No. 1 Fortson Bros., Eli Smith Sur., 5 mi. NE Corsicana. S.D. 150 ft.

T. Sharpe et al No. 1 E. B. McDowell, T. Jordan Sur., ½ mi. S of Bassets. Drlg. 3,000 ft.

Rusk County

J. W. Shipman et al No. 1 Citizens Bank, J. J. D'Barbo Sur., 4 mi. NE of Henderson. S.D. 4,500 ft.

EAST TEXAS

(Border Counties)

Cass County

American Liberty Oil Co. No. 5 Maxie, John Collom Sur. Drlg. 5,460 ft.

Ark. La. Gas Co. No. 1 Neilon, Thomas Gillespie Sur. Drlg. 3,100 ft.

Geo. Barham No. 1 Whitfield, R. Bennington Sur. Drlg. 3,940 ft.

Bay Oil Corp. No. 3 Cobb, G. Crowder Sur. 7-in. 6,067 ft.; T.D. 6,108 ft.

R. W. Norton No. 3 W. E. Starke, 13⅜-in. 250 ft.; drlg. 5,155 ft.

Union Prod. Co. No. 4 J. S. Hall, J. N. Jackson Sur. Drlg. 2,011 ft.

United Prod. Co. No. 4 Belote, H. Holbert Sur. T.D. 5,980 ft.; tstg.

United Prod. Co. No. 7 Bewley, H. Holbert Sur. T.D. 5,990 ft.; tstg. gas.

United Prod. Co. No. 1 fee, H. Holbert Sur. W.O. 6,070 ft.

United Prod. Co. No. 1-A Starke, D. Gilliam Sur. S.D.; W.O.

Marion County—Rodessa

Arkansas-Louisiana Gas Co. No. 2 Emma Ford, A. D. S. Coy Sur. Drlg. 6,027 ft.

Arkansas-La. Gas Co. No. 1 J. P. Fant, L. P. Cadenhead Sur. Comp.; A.G.L. 23 B.P.D.; T.D. 6,150 ft.

Ark.-La. Gas Co. No. 1 Wade Houston, A. D. S. Coy Sur. Drlg. 6,083 ft.

Fohs Oil Co. No. 3 Mary McReynolds, A. D. S. Coy Sur. Drlg. 4,003 ft.

Fohs Oil Co. No. 1 W. T. Neilon, R. Bennington Sur. Loc. moved to SE cor. 70-ac. Neilon Sur. R.U.

Fohs Oil Co. No. 2 M. Reynolds, A. D. S. Coy Sur. Drlg. 6,594 ft.

Gulf Prod. Co. No. 2 L. Henderson, R. Bennington Sur. Drlg. 5,001 ft.

Heyser-Heard & Clardy No. 1 L. Henderson, R. Bennington Sur. Drlg. 1,450 ft.

Holcomb & Thomasson No. 1 Gray-Taylor, A. D. S. Coy Sur. Drlg. 5,838 ft.

Mid-Continent Pet. Corp. No. 4 Sory, A. D. S. Coy Sur. Drlg. 5,284 ft.

Hunter Co. No. 3 Fonda, A. D. S. Coy Sur. Comp.; flw. 162 B.P.D.; T.D. 6,143 ft.

Union Prod. Co. No. 5 Hutchinson, A. D. S. Coy Sur. Drlg. 3,888 ft.

United Prod. Co. No. 3 Hutchinson, A. D. S. Coy Sur. Drlg. 5,700 ft.

United Prod. Co. No. 4 Hutchinson, A. D. S. Coy Sur. Drlg. 5,811 ft.

Panola County

Danciger O. & G. Co. No. 1 Tatum, A. Bissell Sur. T.D. 6,514 ft.; 7-in. cmtd.

Magnolia Pet. Co. No. 2 E. A. Hull, Thos Applewhite Sur. Drlg. 8,710 ft.

WEST TEXAS WILDCATS

Andrews County

M. J. Delaney No. 1 E. P. Moore, sec. 12, Blk. A-20, P.S.L. Sur. T.D. 4,579 ft.; M. S. Forgeron et al No. 1 Lockhart & Brown, C NE¼ sec. 20, Blk. A-41, P.S.L. Sur. S.D. 179 ft.

Gulf Oil Corp. No. 1 State, sec. 8, Blk. 14. T.D. 2,997 ft. Fsg.

Bailey County

Etz & Robinson No. 1 Enochs, Tract 66, League 182, Floyd Co. School Lands Sur. S.D. 1,970 ft.; W.O.C.

J. O. Whittington No. 1 McKelvey. Drlg. 3,632 ft.

Brewster County

F. C. Dodson No. 1 Texas American Synd., sec. 66, Blk. 10, G.H.&S.A. Sur. S.D. 6,001 ft.; straight reaming.

Storey No. 1 Wilson, sec. 3, Blk. 212, T.& St.L. Sur. S.D. 2,545 ft.

Cochran County

Texas Co. No. 1 Slaughter. T.D. 4,960 ft.; shot; no results.

P. N. Wiggins et al No. 1 Dean, NE cor. League 58, Martin Co. School Lands. T.D. 4,800 ft.; S.D.

Pete Wiggins et al No. 1 C. Slaughter Dean, C Lab. 26 League 92, Lubbock Co. Sch. Ld. T.D. 5,020 ft.; shot; C.O.

Concho County

Sam Murray No. 1 R. G. Armor, sec. 105, T.&N.O. Sur. Spudded and S.D.

Coke County

Barnett Pet. Co. No. 1 J. R. Mims, sec. 39, Blk. W, T.&P. Sur. S.D. 925 ft.

H. E. Ogden et al No. 1 Rawlins, sec. 390 Blk. B-21. S.D. 515 ft.

Crane County

Wilcox O. & G. Co. No. 1 McKnight, sec. 9, Blk. 46, Twp. 3s, G.M.M.B.&A. Sur. Drlg. 5,650 ft.

Crockett County

Moore Bros. No. 1 P. Perner, sec. 37, Blk. 2, I.&G.N. Sur. Drlg. 5,615 ft.

Stewart & Cormas No. 1 Hoover, sec. 1, Blk. FF, B.B. Sur. Drlg. 852 ft.

Culberson County

C. A. Jarrell et al No. 1 C. M. Caldwell, C of SW¼ sec. 15, Blk. 100, P.S.L. Sur. Spudded 50 ft.; drlg. water well.

Dawson County

R. Albaugh No. 1 D. Hogg, SE of SE sec. 17, Blk. 34, Twp. 4n, T.&P. Sur. Drlg. 3,661 ft.

E. L. Wilson No. 1 Scanlon, Sec. 83, Blk. M, E.L.R.R. Sur. S.D. 4,965 ft.; P.B. to 4,933 ft.; S.D.

Dickens County

C. E. Litchfield No. 1 Harris, sec. 354, Blk. 1, H.&G.N. Sur. Coring 1,615 ft.

J. F. Morrisey et al No. 1 C. L. Bird, sec. 290, Blk. 1, H.&G.N. Sur. S.D. 840 ft.

Edwards County

A. P. Carter No. 1 F. D. Sweeten, S&E sec. 48, Blk. 2, B&B Sur., 1½ mi. E of Rock Springs. Fsg. 5,096 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkle. S.D. 3,171 ft.

Fisher County

I. J. Allen No. 1 H. S. Newman, Lot 49, Bastrop Co. Sch. Lds. Drlg. 1,212 ft.

Bond Oil Corp. No. 1 N. Bertram, 1 mi. S of Sylvester. T.D. 1,430 ft.; set csg.

Consolidated Oil Co. et al No. 1 Florida. S.D. 2,900 ft.

General Crude Oil Co. No. 1 Morrow, sec. 185, Blk. 2, H.&T.C. Sur. R.U.R.

Gaines County

Amerada Pet. Corp. No. 1 Matthews, sec. 417, Blk. G, C.C.S.D.&R.G.N.G. Sur. T.D. 5,018 ft.; P.B. to 4,997 ft.; swbg. oil and water.

A. G. Carter et al No. 1 Giesecke, NW cor. Labour 1, League 296, Reagon Co. School Lds. Loc.

Continental Oil Co. No. 2 Jones, sec. 1, Blk. A-8, P.S.L. Sur. Drlg. 2,740 ft.

R. H. Gill No. 1 S. R. Simpson, sec. 8, Blk. C-44, P.S.L. Sur. Drlg. 5,105 ft.

Shell Pet. Corp. No. 1 Robertson, sec. 344, Blk. G. Loc.

Garza County

M. L. Richards No. 1 Slaughter. S.D. 500 ft.

Hockley County

The Texas Co. No. 2 Slaughter, 440 ft. S and E of Labour 92, league 37, Zavalla Co. Sch. Lds. Drk.

Howard County

W. F. McDermott et al No. 1 Lucas, sec. 18, Blk. 29, Twp. 1n, T.&P. Sur., 5 mi. N of Dodge pool. Fsg. 1,185 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp. 6, T.D. 3,206 ft.; U.R. to set csg.

Haymon Krupp No. 1 Briggs, sec. 24, Blk. 73, Twp. 7, T.&P. Sur. Drlg. 800 ft.

Jeff Davis County

H. D. Wilcox et al No. 1 Jones-Coffield S.D. 3,315 ft.; C.O.

Loving County

Barnett Pet. Co. No. 1-A Johnson, sec. 2, Blk. 57, Twp. 1, T.&P. Sur. S.D. 2,006 ft.

Barnett Pet. Corp. No. 1-B W. D. Johnson, sec. 12, Blk. 56, Twp. 1, T.&P. Sur. T.D. 2,939 ft.; bailing water.

Carpenter & Grierson No. 1 Mrs. Bennie Barnes, sec. 22, Blk. C-25, P.S.L. Sur. Loc.

Continental Oil Co. No. 1 E. C. Marrs, sec. 20, Blk. 54, Twp. 2, T.&P. Sur. Drlg. 4,053 ft.

Martin County

J. L. Green et al No. 1 O. B. Holt, C of Labour 20, Lge. 319, Garza Co. Sch. Lds. Drlg. 1,522 ft.

Nolan County

M. S. Ingleright & L. E. Hults No. 1 Blank, Blk. 1-A, H.&T.C. Sur., near Decker. Drlg. 3,852 ft.

Pecos County

Adams No. 1 A. A. Gray, sec. 593, Blk. 105, G.C.&S.F. Sur., 12 miles N of Fort Stockton. Loc.

Messenger & Osburn No. 1 Humble-Young, sec. 49, Blk. 10, H.&G.N. Sur. T.D. 1,807 ft.; bailing.

S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Drlg. by drill stem 5,444 ft.

Trans-Pecos Oil Co. No. 1 Popham. T.D. 535 ft.; lost hole; skd. 25 ft. south; S.D. 1,120 ft.

W. K. Tuller No. 2 Perry. S.D. 1,934 ft.; swbd. 5 bbls. in 24 hrs.

Wilcox O. & G. Co. No. 1 Serf, sec. 27, Blk. 130, T.&St.L. Sur. Loc.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk. 12, G.H.&S.A. Sur. S.D. 4,375 ft.

Sadler Bros. et al No. 1 Bagley. S.D. 3,315 ft.

Reagan County

K. E. Sherman No. 1 W. E. Friend, SW Wm. Allen Sur. Drlg. 2,472 ft.

Moore Bros. No. 1 University, sec. 8, Blk. 7. Drlg. 2,900 ft.

Reeves County

Barnett Pet. Corp. No. 1 Ely, sec. 38, Blk. 71, P.S.L. Sur., 12 mi. NW of Toyah. S.D. 1,400 ft.

Runnels County

Price & Koener No. 1 Beddo, sec. 51, Thompson Casey Sur. Drlg. 1,160 ft.

K Z Oil Co. No. 1 Fletcher, E. C. Glos. Sur. Drlg. 3,427 ft.

Stephenson & Glober No. 1 Fowler, sec. 150, E.T.R.R. Sur., 2 mi. NE of Ballinger. T.D. 1,095 ft.; S.D.

Schleicher County

J. M. Cooper No. 2 B. Page, sec. 40, Blk. 1 G.H.&S.A. Sur. T.D. 4,710 ft.; U.R. csg.

Tex-Tor Oil Corp. No. 1 Judkins & Spencer, C of SW¼ sec. 33, Blk. A, A.&B. Sur. Drlg. 3,312 ft.

Scurry County

Robinson Drlg. Co. No. 1 Martin, sec. 147, H.&T.C. Sur. Drlg. 2,100 ft.

T. G. Shaw Oil Co. No. 1 First Natl. Bank, Drlg. 1,912 ft.

Sterling County

Wilcox O. & G. Co. No. 1 Kinnebrew Est., sec. 101, Blk. 2, H.&T.C. Sur. T.D. 2,600 ft.; U.R. csg.

Snowden & McSweeney No. 1 Harris, sec. 110, Blk. 6, H.&T.C. Sur., 20 mi. SE of Sterling City. Drlg. 863 ft.

Sutton County

Ordovician Oil Co. No. 1 Evans, sec. 1, L. Stubblefield Sur., 32 mi. SE of Sonora. Top Strawn 2,860 ft.; Bend, 3,198 ft.; T.D. 3,065 ft.; R.U. spudder.

Terrell County

D. & S. Oil Co. No. 1 Sam Bell. S.D. 345 ft.

Tom Green County

Humble O. & R. Co. No. 1 Lewis & Wardlaw, sec. 5, Blk. 17, H.&T.C. Sur. Drlg. 1,112 ft.

Ward County

L. F. White et al No. 1 Rector-Monroe, E cor. sec. 3, Blk. 1, W.&N.W. Sur. Top Del. L. 4,635 ft.; top Del. sd. 4,670 ft., T.D. 4,710 ft.; fsg.; ran tbg.

Yoakum County

American Liberty Oil Co. No. 1 Claywater. Drlg. 4,830 ft.

J. W. Murchison et al No. 1 Sawyer, SE¼, sec. 702, Blk. D. Cellar.

Denver Prod. & Ref. Co. No. 1-A Whittenburg, sec. 830, Blk. 4. Drlg. 2,512 ft.

J. L. Greene et al No. 1 Nevels, sec. 709, Blk. D. Drlg. 2,322 ft.

Skelly and Sun Oil Co. No. 1 Kiser, sec. 640, Blk. D. Drlg. 3,539 ft.

Standard of Texas No. 1 M. B. Sawyer, sec. 576, Blk. D. J. H. Gibson Sur. Drlg. up swb. 5,264 ft.

L. Stogner et al No. 1 J. A. Blade., sec. 103, Blk. D. Loc.

Texas Co. No. 1 Walker, sec. 794, Blk. D El. 3,656 ft.; T.D. 5,180 ft.; P.B. to 5,162 ft.; shot; acid.; swbg. oil and wtr.

P. N. Wiggins et al No. 1 Bartlett, sec. 359, Blk. D. T.D. 190 ft.; R.U.R.

RANGER (CENTRAL TEXAS) DISTRICT

Brown County

C. R. Cox, Tr., No. 1 Jan Lee, sec. 11, B.B.B.&C. Sur., NE cor. county. S.D. 240 ft.

R. A. J. Cox et al No. 1 H. A. Nichols, 10 mi. SE of Cross Cut, F. Wardsziski Sur., sec. 477. T.D. 2,550 ft.; S.D.O.

Callahan County

R. F. Gilman et al No. 1 W. A. Young, 5 mi. NW Clyde, 1,980 ft. from N and W lines of sec. 37, B.B.B.&C. Sur. Digging pits for 3,500-ft. test.

Hal Hughes No. 1 Poindexter, sec. 350, Geo. Hancock Sur., 2 mi. NE of Oplin. Drlg. 1,580 ft.

J. C. Jackson et al No. 1 Thompson, 2 mi. S. Eula, sec. 30, B.B.B.&C. Sur. S.D. 1,500 ft.

Phillips Pet. Co. No. 1 Cozart, 1 mi. NW Scranton, M. Cherry Sur. U.R. 800 ft.

Walker & Webb No. 1 Ross, 1 mi. NE Clyde, 150 ft. S and E of NW¼ of SW¼ of sec. 81, B.B.B.&C. Sur. Rigging up.

Coleman County

J. F. Brock No. 1 J. H. Livingston, SE cor. SW¼ county, J. D. Waters Sur. No. 208. Drlg. 100 ft.

Dixie O.&G. Co. No. 1 Reaves, 6 mi. NW Bangs, J. M. Rhine Sur. No. 629. S.D. 805 reprs.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. I. Terry, Desdemona pool, N. H. Kuykendall Sur. U.R. 8-in. 3,254 ft.

Dobbs Oil Co. No. 1 Hodges, sec. 11, Blk. 2, H.&T.C. Sur. Drlg. 1,320 ft.

Eastland County

G. D. Chastain et al No. 1 Weddington, 4 mi. N Cisco, sec. 496, S.P.R.R. Sur. T.D. 2,080 ft.; fishing.

Hickok Prod. & Dev. Co. No. 1 Van Parmer, NW cor. county, sec. 477, S.P.R.R. Sur. Drlg. 3,050 ft.

J. D. Kittrell No. 1 Reynolds, 5 mi. E of Carbon, sec. 23, H.&T.C. Sur., Blk. 1. Drlg. 700 ft.

Monark O. & G. Co. No. 1 Downtain, sec. 14 H.&T.C. Sur. Blk. 4, 3 mi. N Eastland. S.D. 2,140 ft.

Erath County

Arnold Oil Co. No. 1 McMillan, 2 mi. SE of Desdemona, T. H. Dixon Sur., Abst. 1,103. Drlg. 1,225 ft.

Hoffman & Page No. 1 Clayton, D. J. O. Millard Sur., 2 mi. SE Desdemona. Drlg. 2,500 ft.

Haskell County

E. W. Marland & H. B. Drake No. 1 Corothers, 6 mi. S Haskell, sec. 67, D. E. Zaaz Sur. S.D. 3,435 ft.

Jack County

Bennett Pet. Corp. No. 1 J. S. Rhodes, 2½ mi. NE Bryson, W. Higgins Sur., Abst. 2,199. Loc.

J. P. Burrus No. 1 W. J. Eatherly, J. Helmstutler Sur. Drlg. 2,100 ft.

Hanlon-Buchanan, Inc., No. 1 Rankin, 2 mi. NE Rhodes pool, J. W. Matlock Sur., Abst. 1,479. T.D. 2,873; W.O.C.

H. B. Madden No. 1 J. L. Mask, sec. 2708, T.E.&L. Sur. S.D. 3,000 ft.

Panhandle Ref. Co. No. 1 D. R. Sewell, 4 mi. E of Bryson, Mary Hamilton Sur., Abst. 262. Sd. 3,049-62 ft.; T.D. 3,225 ft.; S.D.O.

Perren & Gillespie No. 1 Clayton Bros., L. Knight Sur., Abst. 324, 2 mi. NE Bryson. Drlg. 1,650 ft.

O. J. Perrin No. 1 J. S. Rhodes, 3 mi. NE Bryson, J. W. Coates Sur. Loc.

Taubert & McKee No. 1 Eatherly, 3 mi. NW of Gibbtown, SE cor. county. J. H. Henderson Sur. Spd. and S.D.

Joe Worsham et al No. 1 Cash, 3½ mi. NE of Bryson, I. White Sur., Abst. 895. T.D. 3,210 ft.; drlg. by tools.

Jones County

Butler & Horne No. 1 Mrs. R. Cox, 6 mi. E. Hamlin, sec. 3, G.H.&H. Sur. Drlg. 1,600 ft.

E. P. Campbell et al No. 1 L. H. Lee, 5 mi. S Hawley, sec. 16, T.&P. Sur., Blk. 16. Drlg. 200 ft.

Fain, McGaha & Roberts No. 1 Daugherty, 2 mi. S Sandy Ridge pool, sec. 37, T.&P. Sur., Blk. 15. Drlg. 1,060 ft.

Fain & McGaha Oil Corp. No. 1 Francis Olson, 3 mi. NE Avoca, sec. 190, B.B.B. &C. Sur. Drlg. 2,200 ft.

Falls Ref. Co. No. 1 Harris, 4½ mi. NE Hawley, sec. 47, T.&P. Sur., Blk. 15. Drlg. 1,750 ft.

Farris & Ungren & Frazier No. 1 Ida Nolan, 2 mi. E of Stamford, sec. 3, B.B.B. &C. Sur. Fsg. 1,550 ft.

Felmont & Adams No. 1 Woodson, 1½ mi. SE Avoca, sec. 200, B.B.B.&C. Sur. Drlg. 1,580 ft.

Mack Hayes and Montour Oil Co. No. 1 Chittenden, 7 mi. SE Hamlin, 330 ft. from S and W of Subd. 18, McMullen & McGloin Sur. 337. Loc.

W. L. Herring et al No. 1 J. W. Grogan, ½ mi. SE Truly, Maria Rita Longario Sur. Drlg. 1,400 ft.

T. D. Humphrey No. 1 Fielder, 2½ mi. E Anson, sec. 34, O.A.L. Sur. Loc.

Iron Mountain and Humble No. 2 Jones & Stasney, 3 mi. NE of Avoca, sec. 196, B.B.B.&C. Sur. Sd. 1,582 ft.; L. 1,580-87 ft.; T.D.; treated 2,000 gals. acid; tstg.

Kleiner & Brown, Eagle Oil Co. No. 2 Fields, Samuel Andrews Sur. No. 191, 3½ mi. E Hawley. Drlg. 1,250 ft.

Maro Oil Co. No. 1 Webb, sec. 2, C.&M. R.R. Sur., ¾ mi. NW Lueders. Spud.

M. A. Mead No. 1 H. Osment. S.D. 500 ft.

Oil States Expl. Co. No. 1 Olson, 4 mi. N Avoca, sec. 182, B.B.B.&C. Sur. Drlg. 700 ft.

Owen M. Murray et al No. 1 Rial, 2 mi. E Avoca, sec. 198, B.B.B.&C. Sur. Spudded.

Riddle et al No. 1 J. D. Freeman, 8 mi. SW Anson, sec. 6, T.&P. Sur., Blk. 17. T.D. 2,487 ft.; retreating.

Roeser & Pendleton No. 1 Rosenquist, 4½ mi. NE of Avoca, sec. 181, B.B.B.&C. Sur. Drlg. 2,425 ft.

Shaheen Oil Co. et al No. 1 Jenson, 2 mi. E of Avoca, sec. 198, B.B.B.&C. Sur. Drlg. 1,800 ft.

Southern Oil Co. No. 1 B. W. Thane NE cor. County. Andrew Jones Sur. 114. T.D. 2,247 ft.; U.R. 6⅝-in. 2,780 ft.

Stanton & Miller No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. S.D. 965 ft.

Ungren & Frazier et al No. 1 Carl Ecdahl, 3½ mi. NE Avoca, sec. 188, B.B.B.&C. Sur. T.D. 2,240 ft.; U.R. 8¼-in.

C. E. Waite, Trust, No. 1 Ray, 3½ mi. SE of Stamford, sec. 7, D.&D.A. Sur. Drlg. 900 ft.

Palo Pinto County

W. H. Clement No. 1 Federal Life Ins. Co., 2 mi. W Mineral Wells, sec. 51, T.&P. Sur., Blk. A (E of B). S.D. for pipe 400 ft.

Bill Cole et al No. 1 J. W. Harris Est., NW cor. county, De La Garza Sur. Drlg.

Paul Garrett No. 1 Mabry heirs, NE cor. county, sec. 2,572, T.E.&L. Sur. S.D. 470 ft.

W. K. Gordon et al No. 1 Johnson, 5 mi. N. Gordon, John Bird Sur. Drlg.

Henry Hobbs et al No. 1 Bessie Holt, 4 mi. e. Graford, sec. 1,755, T.&N.O. Sur. S.D. 200 ft.

Ernest Lloyd et al No. 1 McClure, 3 mi. NE Graford, 600 ft. from E and 1,200 ft. from S line of sec. 2,004, T.E.&L. Sur. Drlg. 1,200 ft.

Lone Star Gas Co. No. 1 Hart Oil Corp., CWL county, sec. 19n, T.&P. Sur., Blk. 3, 4,000-ft. test. Drlg. 3,500 ft.

Shackelford County

Joe DeGrazier No. 1 Harbough, E cen. part of county, sec. 1,563, T.E.&L. Sur. 4,500-ft. test; bldg. drk.

Forest Dev. Co. No. 1 Hendrick, NW cor. county, 2,600 ft. S and 4,300 ft. E of NE cor. sec. 12, A.B.&M. Sur., but in sec. 1, Blk. A, A.B.&M. Sur. Loc.

T. D. Humphrey No. 1 Alston, NE cor. county, 440 ft. from N and 1,320 ft. from E of E 150 ac. of S 300 ac. of N 400 ac. of sec. 16, H.&T.C. Sur., Blk. 3. Loc.

Owens-Snebold Oil Corp. No. 1 Haterius, sec. 163, B.B.B.&C. Sur. U.R. 10-in. 1,700 ft.

Pardue et al No. 1 M. Davis, 5 mi. S Bluff Creek pool, sec. 20, T.&P. Sur., Blk. 13. O.S. 1,610-13 ft.; S.D.

Stephens County

Barnett Pet. Corp. No. 1 J. Q. Corbett, 4 mi. SE Ivan, sec. 3, S.P.R.R. Sur., Blk. 3. Marble Falls 3,994-95 ft.; est. 10,000,000 ft. gas; T.D. 4,005 ft.; drlg. plug.

Clark & Cowden et al No. 2 Echols Heirs, Blk. 3. T.D. 4,017 ft.; fsg.

W. B. Hamilton No. 1 B. O. Grant, CWL of county, sec. 63, B.A.L. Sur. 2,500-ft. test; T.D. 2,052 ft.; U.R. 8-in.

O. J. Perren No. 1 J. K. P. Hughes, NE cor. County of NW¼ sec. 6 A.B.&M. Sur., Abst. 2,683. P.B. to 3,970 ft. to whipstock and drill new hole; drlg. by whipstock.

Stonewall County

General Crude Oil Co. No. 1 B. F. Harrison, NW cor. D. Harcrow Sur., 1½ mi. N of No. 1 Bryan. T.D. 3,065 ft.; rigging spudder to deepen.

Tarrant County

E. E. Hoffpauir et al No. 2 W. H. Davis, 2 mi. S Arlington, H. Blackwell Sur. S.D.O. 2,140 ft.

Taylor County

Bert Fields et al No. 1 Sears, sec. 223, Blk. 64, H.&T.C. Sur. Spudded.

A. Findley No. 1 Bowles Est., NE cor. county, sec. 26, B.A.L. Sur. T.D. 1,830 ft.

Wise County

Latex Oil Co. No. 1 Smith, 3 mi. E of Bridgeport, Jas. Couch Sur. T.D. 4,075 ft.; shot 60 qts. 3,965-85 ft.; C.O. bridge; testing.

Drilling Contractors

(Continued from Page 85)

the Hastings field, while the balance were divided as follows: One at Lockridge by the Shell Petroleum Corp.; two at West Columbia by Texas Co.; three at Heyser by Portilla Drilling Co., Blanco Oil Co. and Magnolia Petroleum Co.; one each at Clinton and Katy by Stanolind Oil & Gas Co.; one at Fairbanks by the Amerada Petroleum Corp. and Stanolind Oil & Gas Co.; one at Hockley by Stanolind; one at Mykaway by H. C. Cockburn; three at Tomball by Humble Oil & Refining Co. and Shell Petroleum Corp.; two at Magnet by Atlantic Refining Co. and Texas Crusader Oil Co.; one at Withers by Texas Co.; one at Anahuac by Gulf Oil Corp.; four at Amelia by Humble, Stanolind and Sun Oil Co., and two at Hardin by Frazier and Jameson.

Canadian Fields

(Continued from Page 104)

Corp. No. 3, LSD 15, section 19-19-2w5, is below 5,057 feet.

In section 5-19-2w5, Vulcan-Brown Petroleums No. 1, LSD 10, bottoming at 3,110 feet, has plugged back to 3,012 feet. Mercury Royalties No. 1, LSD 8, same section, is working on circulation at 4,907 feet.

In section 33-18-2w5, Royalite Oil Co. No. 6 Sterling Pacific, LSD 5, is below 6,659 feet and getting close to the Madison limestone.

In section 32-18-2w5, Royalite Oil Co. No. 28 Connaught, LSD 16, has spudded and is below 60 feet. Location offsets Royalite No. 3 Sterling to the west. West Turner Petroleums No. 1, LSD 2, is below 2,659 feet. West Flank Oil Co. No. 1, LSD 1, same section, is below 6,125 feet and expected to get the lime within a few days. West Flank No. 2, N half, same LSD, is below 4,111 feet. West Flank No. 3, LSD 8, is below 3,837 feet.

In section 28-18-2w5, Richland Royalties No. 1, LSD 12, is below 2,705 feet. Richland No. 2, LSD 5, is below 5,550 feet.

In section 29-18-2w5, Globe Royalties No. 1, LSD 7, is standing at 2,475 feet. Davies Petroleums No. 1, LSD 2, is standing cemented at 3,508 feet waiting for rotary outfit from No. 1. Sunburst Oil Co. No. 1, LSD 1, is preparing to resume from 2,610 feet.

In section 20-18-2w5, Spy Hill Royalties No. 1, LSD 16, is standing cemented at 4,020 feet, waiting for rotary outfit. Royal Canadian Oils No. 1, LSD 15, is below 5,567 feet. Sunset Oils No. 1, LSD 10, is below 5,754 feet.

New Tests Starting

In section 21-18-2w5, Brown Oil Corp. No. 4, LSD 4, offsetting Foundation Royalties No. 1 to the south and West Side Royalties No. 1 to the west, is working on derrick. Rotary outfit from Brown No. 1 producer will be used. The R. A. Brown interests have also arranged with United Oils, Ltd., for a joint test, to be known as Brown-United No. 1, which will probably be drilled on the United Oils location in LSD 1, section 20-18-2w5.

In section 19-18-2w5, Scottish Petroleums No. 1, LSD 16, is below 108 feet. Location is about a mile west of the crude oil line. Union Drilling Co. is handling the contract.

In section 9-18-2w5, Mid Royal Oils No. 2, LSD 3, has derrick practically completed. Location is south of the Highwood River and a half mile south of National Petroleum Corp. No. 2, the southernmost active test in the field. Davies Petroleums No. 3 is waiting for return of Maynard J. Davies from Vancouver, when a location will be made still farther to the south.

Okalta Structure

On the Okalta fold, west of Turner Valley, Okalta Oil Co. No. 6, LSD 3, section 30-18-2w5, is resuming after running 13-inch casing to 1,903 feet.

North Turner Valley

In North Turner Valley, Phillips Royalties No. 1, LSD 16, section 16-20-3w5, is cleaning out preparatory to resuming from 4,120 feet. Royalite Oil Co. No. 27 Turner Basin, LSD 7, section 27-20-3w5, has resumed after running casing to 4,108 feet. Home Oil Co. No. 1 Millarville, LSD 8, section 33-20-3w5, is in the Lower Blairmore formation below 6,210 feet and believed close to the Madison lime contact.

Border Fields

In the western extension of the Red Coulee field, southern Alberta, Home Oil Co. No. 1 Coutts, LSD 7, section 1-1-18w4, encountered water in the Cut Bank sand at around 3,100 feet, and is being abandoned.

On the Lethbridge structure, Lethbridge Petroleums & Refining No. 1, LSD 12, section 11-8-22w4, is standing at 2,198 feet after running 13-inch casing.

In the Steveville district, Anoconda Oil Co. No. 1, LSD 15, section 9-22-12w5, is preparing to resume after cementing casing at 710 feet. The main potential oil horizon is looked for between 2,000 and 2,500 feet.

PERSONAL

MR. and MRS. CHARLES F. ROESER and MR. and MRS. F. KIRK JOHNSON, all of Fort Worth, Tex., have returned from a hunt in Alaska, where they bagged grizzly bears, moose, sheep and other big game. Mr. Roeser is president of the Independent Petroleum Association of American and, like Mr. Johnson, is an independent producer.

GEORGE B. McCAMEY, independent operator of Fort Worth, Tex., has been named chairman of the board of a corporation organized to develop deep-oil possibilities in northern Pecos County, Texas. L. H. PRICHARD, president of the Anderson-Prichard Oil Corporation, Oklahoma City, was made president. MONTE WARNER, of Dallas, Tex., was instrumental in forming the company and blocking acreage in West Texas, where the company will drill.

SELWYN EDDY, C. L. KLUCK and J. H. LEE, members of the Shell Oil Company's sales staff in California, have been transferred to the Atlantic seaboard in responsible positions with Shell Union Oil Corporation. They have been succeeded on the Pacific Coast by J. W. SOUTHWORTH, W. C. McBAIN and P. G. DREW in a somewhat different setup.

B. N. BLANPIED, geologist with the Gulf Refining Company in Shreveport, La., was elected president of the Shreveport Geological Society for the 1937-38 year last week, succeeding SHAPLEIGH GRAY of the Texas Company. E. B. HUTSON, paleontologist for the Standard Oil Company of Louisiana, was elected vice president, and J. D. AIMER, with the Arkansas-Louisiana Gas Company, secretary-treasurer.

LUTHER H. WHITE, Tulsa, has resigned as chief geologist of the Sunray Oil Company to take a similar post with the Deep Rock Oil Corporation. Mr. White joined the Sunray in 1935 as director of the land and geological departments. He is expected to relieve H. N. GREIS, trustee of Deep Rock, and W. C. ADAMS, active head of the company's land and geological departments, of much of the work which has been on their shoulders. Mr. White went to Tulsa in the employ of B. G. GOBLE, leading producer, in 1916. He joined Hull & Bradstreet two years later, remaining with the partnership during the organization of the Oklahoma Central Oil Company until its sale to the Pure Oil Company in 1922. He then was one of the group chosen by J. A. HULL to head the organization of the J. A. Hull Company, and he remained with the company till he went over to Sunray. He has been active in educational affairs, serving for years on the Tulsa Board of Education. He and MRS. WHITE left Sunday for a Panama Canal Zone cruise from which they will return in time for Mr. White to assume his new position.

M. CLARK, seismologist for the Caribbean Petroleum Company in Venezuela, is on a vacation in California.

JACOB R. MISENHEIMER, Lawton, Okla., has left for Talaria, Peru, to work for the Standard Oil Company. He is an Oklahoma A. & M. graduate.

J. B. ANDERSON, geologist for the Barnsdall Oil Company, has been transferred from the Los Angeles office of his company to become field geologist in Bakersfield, Calif.

RONALD K. DE FORD, geologist for the Argo Royalty Company at Midland, Tex., is back from a vacation in Europe. He attended the international geological convention in Moscow.

J. A. BURLINGHAM, geologist for the Texas Company in Los Angeles, is spending much of his time in Modesto, Calif., to watch the progress of a company wildcat, No. 1 Bacon, southwest of Modesto at Crows Landing in Stanislaus County.

VISCOUNT BEARSTED, M. C., chairman and managing director of the Shell Transport & Trading Company and chairman of Venezuela Oil Concessions, Ltd., accompanied by VISCOUNTESS BEARSTED, is visiting in New York. The two will return to England late this month.

C. H. WRIGHT, Tulsa, president of the Sunray Oil Company, this week announced creation of two new divisions. The Oklahoma-Kansas division, with headquarters in Oklahoma City, Okla., will be in charge of W. H. EASTHAM, formerly assistant to the general superintendent. J. R. VANDEVER, district superintendent at Pampa, will be head of the new West Texas division.

Do You Remember?

From The Oil and Gas Journal Files

10 YEARS AGO

Dry holes, abandoned drilling wells and fishing jobs in the Greater Seminole area in Oklahoma have cost $10,581,000 and the field is only one year and seven months old. A total of 1,124 wells have been drilled and 19.1 per cent were dry, or abandoned because of mechanical trouble.

A 50,000-barrel well opens a field near Kirkuk, Irak, Asia Minor.

Capt. Willie J. McKie, 72, veteran attorney at law, who drew up the original charter under which the Texas Company operated, dies in Corsicana, Tex. He owned 1,500 acres in the Powell field that have yielded 10,000,000 barrels of oil.

20 YEARS AGO

Empire Gas & Fuel Company's No. 3 Shriver, in the Eldorado field, Kansas, which came in as a 20,000-barrel producer, but which was shut in, produced only salt water when reopened. It was found that a split joint of casing let the salt water in. This joint was replaced and the well is now pumping 15,000 barrels of oil per day.

Tank-wagon prices on gasoline in the Standard of Indiana territory are 20 to 22 cents per gallon and f.o.b. Tulsa are from 18½ to 24 cents, according to gravity.

A Canadian chemist invents a process which makes gas from straw. He expects it will be a great boon to western Canada farmers, giving them heat, light and power manufactured on the premises.

25 YEARS AGO

E. G. Palmer, vice president and general manager of production for the Standard Oil Company of Louisiana, resigns to enter business for himself. J. C. Neely succeeds him. Both are former Ohio Oil Company men.

William Muir is elected president of the National Petroleum Association succeeding William E. Wall, retired.

The Cleveland field in Pawnee County is the busiest area in Oklahoma and is bringing in the largest wells.

F. W. OKEY, of the oil umpire's office in Bakersfield, Calif., is visiting Portland, Ore., the Columbia River, the Boulder Dam, and Salt Lake City on a vacation.

WALTER W. HOLMES and WILLIAM F. SEIBOLD, oil operators of Amarillo, Tex., are back from a successful big-game hunting trip in Alaska, around White Horse.

C. A. STEINER, petroleum engineer in the San Joaquin Valley for Union Oil Company, is on a mountain vacation. D. TOWER has assumed Mr. Steiner's duties during the latter's absence.

ARTHUR O. OLSON, president of the Olson Drilling Company, started last Thursday for Canada for an extended hunting trip. HENLY BUNDY, secretary and treasurer of the company, is on a hunting trip in Colorado.

C. W. DONNELLY, graduate of the University of Iowa, and W. G. CLARKSON, JR., graduate of the University of Texas, have joined the geological staff of the Ohio Oil Company in San Angelo, Tex. HUGH STORY also is a recent addition to the staff.

ELLIS O. JONES, JR., of New York, has been appointed director of safety activity of the Ethyl Gasoline Corporation on the West Coast, with headquarters in Los Angeles, Calif. His territory will include California, Arizona, Idaho, Nevada, Oregon, Utah and Washington.

E. H. MOORE, of E. H. Moore, Inc., and his manager of operations, K. R. TEIS, both of Tulsa, flew recently to Santa Maria, Calif. They have staked five locations for additional wells to be drilled on the Union Sugar lease, where the initial well is standing cemented awaiting production test.

PARAGRAPHS

DR. R. H. WASHER, superintendent of the Shell Petroleum Corporation refinery in Roxana, Ill., has been transferred to Houston, Tex., to become head of the refinery at Deer Park. Doctor Washer will succeed W. MULLEMEISTER, who is transferred to the St. Louis office. His position at Roxana will be taken by STANLEY CLULOW, now superintendent of the East Chicago, Ind., refinery.

L. G. WILKE, assistant manager for the Phillips Petroleum Company in Wichita, Kans., has been transferred to Denver, Colo., as assistant manager of sales and operations in that state. H. E. SMITH, formerly city manager in Oklahoma City, succeeds him in Wichita.

CARL R. BLACKMAN, Tulsa, president of the Paramount Royalties Company and vice president of the Mid-Continent Royalty Owners Association, is undergoing treatment in a Montreal, Canada, hospital, in preparation for an operation. Mr. Blackman was stricken while at his summer home near Montreal.

LEE R. COWLES has been made assistant traffic manager of the Standard Oil Co. (Indiana), with headquarters at 910 South Michigan Avenue, Chicago.

JAMES SLEMP, president of the Gibson Oil Corporation, Amarillo, Tex., has returned from a trip east, visiting the new oil fields in southern Illinois on his way home.

KENNETH MARR, of Marr & Janeway, producers in California's San Joaquin Valley and in several coastal fields, is making a tour of inspection of producing properties.

C. H. MANN, credit manager of the Union Oil Company's sales department in the southern division, has been appointed vice president of the Los Angeles Board of Trade.

DR. GLENN E. McLAUGHLIN and WILBERT G. FRITZ, members of the University of Pittsburgh faculty, have been appointed to the Pennsylvania oil investigation commission.

H. F. ABRAMS, superintendent of foreign operations for the Socony-Vacuum Oil Company, Inc., is on a business trip in Europe. He is expected to return to New York October 28.

OSCAR WALTON, geologist for Atlantic Refining Company in Shreveport, La., has been transferred to the Corpus Christi, Tex., office as district geologist, replacing H. N. SEEVERS who resigned.

MAURICE TRIPPLEHORN, petroleum engineer for the J. W. Tripplehorn Oil Company, Fort Worth, Tex., and MISS VAUGHAN KELLY, of Odessa, Tex., were married recently in Odessa and they are on a honeymoon trip in western states.

AUBREY W. SCHOFIELD, independent oil producer of Houston, Tex., has been engaged to head exploratory and drilling work for the Gulf Oil Corporation in England. Mr. Schofield was on the production staff of the Gulf for 15 years. The past two years he has devoted to the Housh-Schofield-Thompson Drilling Company, operating first in the Talco field and then in others. In the World War he served as an aviator. He is a captain in the Thirty-sixth Division Aviation, Texas National Guard. His comrades gave a farewell dinner for him last Friday evening and presented him with a traveling bag. MRS. SCHOFIELD and their son, AUBREY SCHOFIELD, JR., will remain in Houston till Mr. Schofield gets settled in England. Mr. Schofield is in Pittsburgh, Pa., this week, conferring with Gulf officials. He will sail November 1.

H. W. BOGGESS, Tulsa, was named chairman of the petroleum section of the National Safety Council for 1937-38 by W. H. CAMERON, managing director of the council, at the closing session of the organization's annual meeting in Kansas City, Mo., last Friday.

J. G. HARDIN, 83, of Dallas, Tex., who gave much of his $12,000,000 fortune from the Burkburnett field to educational institutions, was guest of honor last Sunday at J. G. Hardin day ceremonies at the Pan-American Exposition in Dallas. A scroll was presented to him in the Hall of State. FRANK L. McNENY, director general, extended an invitation to oil men attending the oil show and the Independent Petroleum Association of America's convention in Houston, Tex., and many stopped in Dallas on their way home to accept the invitation.

"Dooley" to His Friends

How the name originated is not clear, but to his intimates Charles E. Yager is not "Charlie" or "Chuck," but "Dooley." Mr. Yager is not only the youngest director of the Texas Pacific Coal & Oil Company, but at 38 he is one of the youngest chief geologists in the service of any oil company in the country.

CHARLES E. YAGER

Mr. Yager was born in Stillwater, Okla. Soon afterward the family moved to Abilene, Tex., where the boy grew up and attended the city schools. He spent two years in the University of Texas before going to the University of California, where he received his B. S. degree in geology in 1922. The young man went to work for the Texas Pacific that fall and he has been associated with the company since then, except for six months in 1923, when he was assistant field superintendent for the Freeport Sulphur Company, in Freeport, Tex. On returning to his original employers he soon became assistant to the chief geologist, and in 1929 he was advanced to chief geologist. In this position he supervises all leasing work, besides the geological, scouting and exploration activities.

Mr. Yager resides in Fort Worth, Tex. He is married and has two children. He is a past president of the Fort Worth Geological Society. He gets much of his diversion from membership in the Fort Worth Boat Club and from fishing. He is a member of the Delta Kappa Epsilon college fraternity and of the American Association of Petroleum Geologists.

SAM HULSE, sales manager for the Warren Petroleum Company, Tulsa, has a new daughter, MARY JANE HULSE. Eight pounds on arrival.

DR. THOMAS COOKE, of Chicago, has been appointed to the water-flooding research staff of the Pennsylvania State College School of Mineral Industries.

MAX APP, production superintendent for the General Petroleum Company in Bakersfield, Calif., is on a vacation in the mountains while C. V. DITTMAN fills his position.

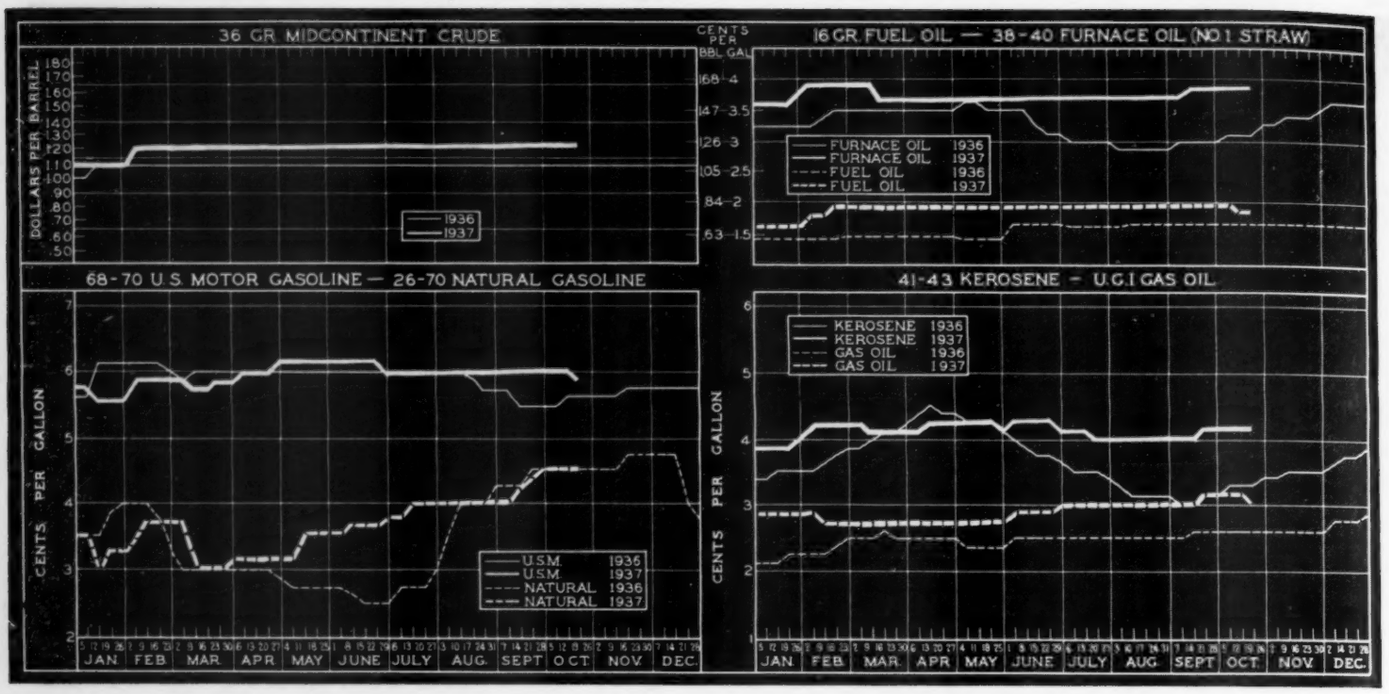
WALTER E. HURD, Narberth, Pa., president of the Homestead Oil & Gas Company, Ltd., of Toronto, Canada, has returned home after a business trip to West Texas.

F. A. CHILES has been transferred from the Seaboard Oil Corporation's offices in Corpus Christi, Tex., where he was in charge of the company's production division, to the head offices in Dallas.

WILLIAM KECK, JR., vice president and general manager of the Superior Oil Company, recently left his Los Angeles office to visit the extensive holdings of his company in the Mid-Continent fields.

ARTHUR B. ALLEN, oil man of Breckenridge, Tex., suffered grave injuries in an automobile accident near Colorado, Tex., last week, when his car and another crashed on a wet pavement. It was believed this week he would recover.

A. F. HOLLIDAY, director of the Plymouth Oil Company, Pittsburgh, Pa., was in Corpus Christi, Tex., last week inspecting properties of the company and of the affiliated Benedum & Trees Oil Company and Hiawatha Oil & Gas Company.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Heating Oils Move Ahead in Group 3 as Demand for Gasoline Slackens

By T. F. SMILEY

With the demand for gasoline continuing its leisurely recession, the strength of the heating oils became more conspicuous in the Group 3 refined-oil market this week. No. 2 straw was leading the list, and prime white was close behind. No. 3 furnace oil, particularly the low cold test, was scarce, with buyers less disposed to quibble over prices.

Kerosene, closely associated with furnace distillates in market behavior, was exhibiting increased vigor. "I need kerosene and I've been combing this whole area for it," said one sales manager. "Almost everywhere I turn I get the same response. 'We're in the same fix; we want it, too,' they tell me. Those who do have a little material won't consider anything under 4⅛ cents, and most of them won't even consider that. They don't want to sell. I've picked up only a few cars that enabled me to make just a shadow of profit. I don't know of a refiner who is selling to the trade under 4⅛ cents."

East Texas Sold Out

The East Texas area was reported sold out of kerosene this week, with refiners getting 4⅛ cents f.o.b. One reason for the activity of kerosene is found in the rising demand for burning oils. Untreated kerosene is used largely as a heating oil. What is consumed in that way is taken out of the regular kerosene market, thus reducing the supply of treated kerosene and increasing its value.

In line with the common expectation, though indefensible from a business standpoint according to many observers, the higher-octane motor fuels followed the trail of the third grade in the past week and dropped an eighth from the tankcar price. Although consumption is tapering off, as it always does at this time of the year, the fall gallonage promises to surpass that of 1936. Some men in the trade declare nervousness, and not necessity, was responsible for the price reduction.

Fear of a cut in the price of crude, with consequent lower prices for refined products, is said to be prompting many of the smaller refiners to move their gasoline into the market as fast as it is made, unwilling to store such part of it as does not find a ready outlet. The fact that the nation's stocks of gasoline are rising again is referred to with a touch of concern, although they rise regularly at this season. Even the Madison trial seems to be a source of vague uneasiness. Some East Texas refiners, who must buy all or most of their crude, declare they would have to operate at a loss at the reduced prices for gasoline and are shutting down their plants.

Refined Oil Market Barometer

Kerosene and light heating oils gaining strength and some buyers finding them scarce. Gasoline demand slackening. Disinclination of some refiners to store because of uneasiness over price trends is helping to oversupply the market, with consequent softness of the price structure. Lubricants easier, with narrowing differential between Pennsylvania and Mid-Continent prices.

MID-CONTINENT. Gasoline off. Kerosene and domestic burning oils increasingly scarce.

EAST COAST. Gasoline prices in New Jersey reduced because of underselling. Fuel oils strong.

GULF COAST. Gasoline and light refined products weak. Burning oils tight.

CALIFORNIA. Fuel oil, diesel and gas oil firm. Higher rate seen on contract renewals.

PENNSYLVANIA. Bright and steam-refined stocks weaker. Kerosene exceptionally strong.

CHICAGO. Gasoline easy. Fuel oils, except heavy grades, strong. Kerosene in demand.

New Interest in Lubricants

The lubricant group has become a center of increased interest with the adoption by Mid-Continent refiners of a changed policy with regard to prices. It has been a settled practice to move prices up or down according as Pennsylvania prices rose or fell. Mid-Continent refiners say they are convinced this was a foolish procedure, since the differential maintained was so wide it sometimes robbed them of reasonable profit. It is planned to disregard Pennsylvania prices in the future and to let supply and demand fix the Group 3 quotations. An exception would be a situation in which Pennsylvania prices are reduced to a point which enables the Pennsylvania refiner to pay the freight into Group 3 territory and yet undersell the Group 3 refiner. Recent cuts in Pennsylvania bright stocks, with no corresponding cuts by Group 3 refiners have removed the wide gap which formerly existed between the two sets of prices.

Natural gasoline was softer, with increased offerings from smaller manufacturers. A few export inquiries for part cargoes were in the market. These are understood to be from buyers who are getting refinery gasoline in this country and want the natural for blending after the entire cargo has reached its oversea destination.

New Jersey Gasoline Tankcar Prices Lower as Result of Underselling

By H. STANLEY NORMAN

NEW YORK, Oct. 19. — Continued under-the-market selling in New Jersey's gasoline commerce precipitated a reduction by major sellers last week of a quarter of a cent per gallon on tankcar deliveries. Standard Oil Co. of New Jersey reduced the New Jersey tankcar gasoline price to 7¼ cents per gallon for 62-63 motor fuel at Bayonne October 15 and to 7½ cents per gallon on 65-66 octane material the same date.

The market recession was confined to New Jersey deliveries. The Standard of New Jersey continued to quote 7¾ cents for 62-63 octane gasoline and 8 cents for 65-66 motor fuel to the New York trade. Other marketers in the territory followed in dropping gasoline prices for delivery restricted to New Jersey.

Following a policy announced during the middle of the summer, the Standard of New Jersey statement said that the price change was the result of competitive conditions existing in the territory. Last summer, W. S. Farish, president of Standard of New Jersey, said that all future price changes by the company would be explained to the public. There has been an increasing volume of gasoline business transacted in New Jersey at prices below those posted by the major refiners during the past few weeks. Developments in the New Jersey market have been reflected to a smaller extent in New York, but so far the end-of-summer quotations are maintained on the east side of the Hudson River. Rumors were prevalent last week that barge deliveries of 65-octane gasoline could be obtained in New York at an eighth to a quarter of a cent per gallon below the prices generally posted. As in the past, however, the volume of material available at concession prices is restricted. Suppliers are quoting from 7¼ to 7½ cents per gallon for barge delivery while tankcar quotations in the open market are from 7½ to 7¾ cents per gallon for 65-octane motor fuel. Some reports were heard that tankcar business could be done at 7⅞ cents per gallon in some directions, but efforts to trace down details of transactions at this figure in New York were unavailing.

With colder temperatures prevailing in the northeastern part of the country last week ranging down to the freezing point at Buffalo, N. Y., interest quickened in fuel oils. The market is somewhat mixed as might be expected at this season of the year when some dealers find they have overestimated the early winter demand and others find themselves short. Uniformly, however, suppliers report the demand for No. 2 fuel oil to have improved appreciably during the past week. Average temperatures have receded to the extent that heating of private homes, apartments and office buildings is now necessary on at least a 12-hour basis or longer.

Peddlers, who have supplied "batch" quantities to consumers for early season heating, are now paying from 5½ to 5¾ cents per gallon for No. 2 fuel oil at racks in New York, which is slightly above the refinery tankcar market. Further advances may be expected within a week or two in line with price ideas held by Gulf Coast refiners.

Despite the talk persisting that Bunker C fuel oil is available below the large sellers' quotations of $1.35 per barrel in New York harbor, information on actual transactions at the range of $1.25 to $1.30 per barrel is difficult to obtain. In fact efforts to trace reports of business at $1.30 per barrel met with denial from both the seller and buyer mentioned in the transaction. It was thought likely, however, in New York marketing circles that a limited amount of industrial fuel oil may have reached this section of the country at concession figures. There was a slight softening of the Gulf Coast market for heavy fuel oil about three weeks ago which has not been completely eliminated, giving rise to the credence of concession price reports.

Although the New Jersey motor fuel market has not been satisfactory for months, the lower prices posted by some refiners last week is taken by observers as a possible barometer for winter business. Several market observers are concerned over the prospective motor fuel stock position next March. Conclusions on position of motor fuel stocks five months ahead are still in a nebulous state and those speculating that far in advance make their predictions contingent on conduct of the refining operations during the winter. Much depends on how near an economic parity with gasoline the fuel oil market rises. Pressure is constantly applied at various points in the refining industry to keep fuel oil prices down on a competitive level with other sources of heat—meaning coal and gas.

There is already ample evidence at hand that fuel oil consumption will climb to record-breaking levels this winter. Some refiners have sufficient business on their books at the present time to absorb their entire fuel oil production for the winter plus stocks which have been built up over the past summer. This condition does not apply to all refiners, however, and there is expected to be adequate fuel oil available to the consuming public at prices in direct competition to other fuels, taking into consideration a premium for convenience and cleanliness.

Almost uninterrupted decline of the Pennsylvania lubricating oil market for the past three or four weeks culminated last week in a second cut for crude oil. About the only Pennsylvania lubricating material holding its own in the market is low pourpoint bright stocks. Cylinder oil drifted to new low ground and high pourpoint bright stocks were softer and in slight demand. A low of 10¼ cents per gallon was reached in some transactions direct to trade last week on Pennsylvania 600 steam refined stock. Business in the higher flash brackets was not satisfactory from a volume standpoint, but prices held reasonably steady. Offsetting the unfavorable market conditions in part of the Pennsylvania products were slightly better prices and strong demand for kerosene, light fuel oils and neutral oil. Gasoline prices were about the same as the preceding week with sufficient demand to keep refiners' stocks pliable.

Kerosene was also in strong position in New York and adjacent markets during the week. Several jobbers are now ordering out supplies against contract in anticipation of the demand now developing, but which will continue to expand until the peak is reached in January and February. While business against contracts is the backbone of current activity, open market trading has picked up considerably during the past two weeks. Barged kerosene is available in New York at 6⅛ cents, but a majority of business appears to be closed on the current tankcar quotation of 6.3 cents per gallon at New York and New Jersey refineries. Prices have

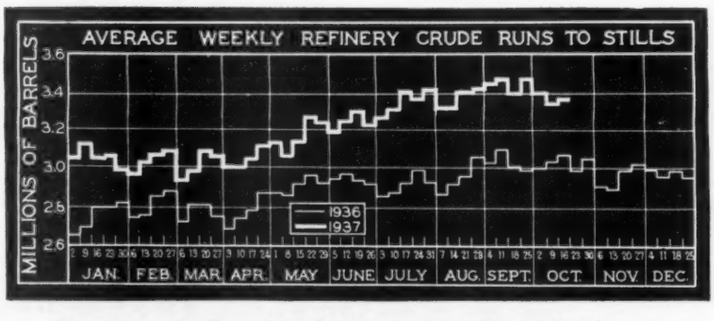
(Continued on Page 120)

A. P. I. Weekly Refinery Statistics

Week Ending October 16, 1937

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	530,000	18,216,000	15,599,000
Appalachian	88.4	106,000	2,647,000	617,000
Indiana, Illinois, Kentucky	92.4	461,000	10,014,000	7,398,000
Oklahoma, Kansas, Missouri	84.7	298,000	6,002,000	3,891,000
Inland Texas	56.6	144,000	1,852,000	1,954,000
Texas Gulf	95.7	735,000	8,157,000	11,128,000
Louisiana Gulf	96.6	140,000	1,743,000	3,441,000
North Louisiana and Arkansas	63.7	49,000	401,000	436,000
Rocky Mountains	69.7	52,000	1,289,000	722,000
California	90.9	557,000	11,879,000	70,319,000
Total reported	89.0	3,072,000	62,200,000	115,805,000
Estimated unreported	.....	308,000	3,560,000	3,350,000
*Estimated total	.....	3,380,000	65,760,000	119,155,000
*Estimated total, previous week	.....	3,350,000	65,532,000	118,442,000
*October 17, 1936	.....	3,060,000	57,987,000	113,773,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending October 2, 1937	309,036,000 barrels
Week ending September 25, 1937	307,974,000 barrels
Week ending October 3, 1936	291,954,000 barrels

RETAIL OIL MARKETS

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of October 19, 1937

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Chicago, Ill.	15.5	13.5	4.0	10.1
Decatur	15.5	14.0	4.0	10.1
Joliet	15.5	14.0	4.0	10.1
Peoria	15.5	14.0	4.0	10.1
Quincy	15.3	13.8	4.0	9.9
Davenport, Ia.	15.5	14.0	4.0	‡13.1
Des Moines	15.3	13.8	4.0	‡12.9
Mason City	15.7	14.2	4.0	‡13.3
Sioux City	15.5	14.0	4.0	‡13.1
Duluth, Minn.	17.3	15.8	5.0	10.9
Mankato	16.9	15.4	5.0	10.5
Twin Cities	16.9	15.4	5.0	10.5
Lacrosse, Wis.	16.9	15.4	5.0	10.5
Green Bay	17.2	15.7	5.0	10.8
Milwaukee	16.8	15.3	5.0	10.4
Detroit, Mich.	15.4	13.9	4.0	9.8
Grand Rapids	16.5	15.0	4.0	10.9
Saginaw	16.3	14.8	4.0	8.5
Evansville, Ind.	17.0	15.5	5.0	†10.6
Indianapolis	17.2	15.7	5.0	†10.8
South Bend	17.4	15.9	5.0	†9.6
Fargo, N. Dak.	16.9	15.4	4.0	11.5
Minot	18.1	16.6	4.0	12.7
Huron, S. Dak.	17.3	15.8	5.0	10.9
Kans. City, Mo.*	14.9	13.4	4.0	8.0
St. Louis*	15.2	13.7	4.0	9.8
St. Joseph*	14.9	12.4	4.0	9.0
Wichita, Kans.	14.4	12.9	4.0	8.0

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Iowa kerosene prices include 3-cent state tax.

(Exclusive of state general sales taxes, except Indiana and South Dakota.)

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Atl'tic City, N. J.	13.5	12.0	4.0	9.0
Newark	13.5	12.0	4.0	9.0
Annapolis, Md.	15.6	14.1	5.0	9.5
Baltimore	15.0	13.5	5.0	9.0
Cumberland	17.4	14.9	5.0	10.0
Wash'g'n, D. C.*	12.5	11.0	3.0	9.5
Danville, Va.	18.2	15.7	6.0	12.9
Norfolk	17.0	14.5	6.0	11.5
Petersburg	17.3	14.8	6.0	11.7
Richmond	17.3	14.8	6.0	11.7
Roanoke	18.5	16.0	6.0	12.9
Charles'n, W. V.	17.8	15.3	6.0	12.6
Parkersburg	17.1	14.6	6.0	11.2
Wheeling	17.0	15.5	6.0	12.2
Charlotte, N. C.	19.4	16.9	7.0	12.6
Hickory	19.9	17.4	7.0	13.0
Mt. Airy	19.7	17.2	7.0	12.8
Raleigh	19.0	16.5	7.0	12.1
Salisbury	19.5	17.0	7.0	12.7
Charleston, S. C.	18.0	15.5	7.0	11.1
Columbia	19.0	16.5	7.0	12.1
Spartanburg	19.7	17.2	7.0	12.9

*Standard of N. J. has discontinued posting service-station prices at all above points except at Washington and Baltimore where station prices of 16.0 and 18.5 cents, respectively, are in effect.

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5-cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank wag.	Net dlr.	Inc. tax	tank-wag.
Atlanta, Ga.	21.0	18.0	7.0*	†12.0
Augusta	21.0	18.0	7.0	*14.0
Macon	21.5	18.5	7.0	*14.5
Savannah	19.0	16.0	7.0	*12.0
Birm'ham, Ala.	20.0	17.0	8.0	12.0
Mobile	22.0	19.0	9.0	11.0
Montgomery	22.0	19.0	9.0	14.5
Jackson, Miss.	21.0	18.0	7.0	*13.0
Vicksburg	20.5	17.5	7.0	*13.0
Jacksonville, Fla.	20.5	17.5	8.0	†10.0
Miami	20.5	17.5	8.0	†12.0
Pensacola	22.0	19.0	9.0	12.0
Tampa	19.0	16.0	8.0	10.5
Lexington, Ky.	20.0	17.0	6.0	11.0
Covington	19.5	16.5	6.0	11.0
Louisville	20.0	17.0	6.0	10.5
Paducah	20.0	17.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Denver, Colo.	17.5	5.0	11.5
Grand Junction	20.0	5.0	15.0
Pueblo	16.0	5.0	10.5
Casper, Wyo.	18.0	5.0	11.5
Cheyenne	18.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	21.0	6.0	15.5
Helena	21.5	6.0	15.5
Great Falls	21.5	6.0	15.5
Salt Lake, Utah	19.5	5.0	16.0
Twin Falls, Ida.	21.5	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	6.5	12.0

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank wag. con'r.	Di-vided dlr.	Inc. tax	tank-wag.
Ohio points	17.0	16.0	5.0	*13.5

*Includes state tax of 1 cent.

Discounts to commercial consumers, contract: Effective Aug. 12, 1937, for Ohio state-wide, 20,000 gallons or over per month, 1 cent per gallon off commercial consumer tank-wagon price. Tank-wagon price is price to commercial consumers in deliveries of 25 gallons or more; less than 25 gallons gets service-station price. Price to undivided dealers is same as to commercial consumers.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	17.9	16.4	6.0	10.4
McCook	18.0	14.0	6.0	10.0
Norfolk	18.3	16.8	6.0	10.8
North Platte	18.7	17.2	6.0	11.2
Scotts Bluff	19.4	15.9	6.0	11.9

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	9.0
Fresno, Calif.	18.5	19.5	4.0	12.0
Phoenix, Ariz.	21.0	22.0	6.0	‡16.0
Reno, Nev.	20.0	21.0	5.0	13.0
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

‡Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Albany, N. Y.	15.0	13.5	5.0	9.0
*Met. N. Y.:				
Manh't'n, Br'nx	14.5	13.5	5.0	9.0
Staten Island	15.0	13.5	5.0	9.0
Q'ns & Brklyn	14.5	13.5	5.0	9.0
Buffalo	15.8	14.04	5.0	8.5
Rochester	15.5	14.17	5.0	8.5
Syracuse	15.5	14.12	5.0	9.5
Boston, Mass.	12.25	13.5	4.0	8.5
Portland, Me.	15.8	13.5	5.0	8.75
Manch'ter, N. H.	16.3	14.0	5.0	9.5
Burlington, Vt.	15.9	13.9	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; Monthly purchases under 5,000 gallons, pay divided dealer tank-wagon price at delivery point.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Ok.	17.0	5.0	7.0
Oklahoma City	14.0	5.0	8.0
Tulsa	14.0	5.0	7.0
Ft. Smith, Ark.	15.5	5.0	8.0
Little Rock	18.0	7.5	9.5
Texarkana	15.5	5.0	8.5

Texas

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	13.5	18.0	5.0	5.0
Houston	14.5	18.5	5.0	8.0
San Antonio	14.5	18.5	5.0	8.0

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
N. Orleans, La.	20.5	18.0*	10.0	†13.0
Baton Rouge	18.5	16.0	8.0	12.0
Alexandria	19.0	16.5	8.0	12.0
Lafayette	19.5	17.0	8.0	13.0
Lake Charles	19.5	17.0	8.0	12.5
Shreveport	18.0	15.5	8.0	9.5
Knoxville, Tenn.	21.5	19.0	8.0	14.0
Memphis	19.5	17.0	8.0	12.0
Chattanooga	21.0	18.5	8.0	13.5
Nashville	20.5	18.0	8.0	11.5
Bristol	20.25	19.0	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Standard of La. has transferred all stations to dealers except in New Orleans and Baton Rouge where station prices are 24 and 22 cents per gallon, respectively.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	14.0	12.5	5.0	10.5
Pittsburgh	15.5	13.5	5.0	11.0
Allentown	15.0	13.5	5.0	11.0
Erie	14.5	13.0	5.0	10.0
Scranton	15.0	13.5	5.0	11.0
Altoona	15.5	13.5	5.0	11.0
Dover, Del.	14.5	....	5.0	11.0
Wilmington	14.5	....	5.0	11.0
Springf'd, Mass.	13.3	....	4.0	9.0
Worcester	14.8	....	4.0	9.0
Hartford, Conn.	14.1	....	4.0	9.0
New Haven	14.0	....	4.0	9.0
Providence, R. I.	14.0	....	4.0	8.5

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150 gallon lots if covered by contract.

Canada*

3 Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N.S.	24.0	8.0	18.8
St. John, N.B.	24.0	8.0	18.8
Montreal, Que.	21.0	6.0	17.8
Toronto, Ont.	22.0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	29.8	7.0	22.8
Regina, Sask.	29.5	7.0	22.0
Saskatoon, Sask.	32.3	7.0	24.8
Edmonton, Alta.	29.5	7.0	24.2
Calgary, Alta.	27.0	7.0	21.5
Vancouver, B.C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. of Kentucky October 2 reduced tank-wagon and dealer gasoline 2 cents in Birmingham and 1 cent in Tampa.

Continental Oil Co. October 7 advanced tank-wagon kerosene 1 cent in Tulsa.

New York Market

(Continued from Page 119)

firmed even more impressively in the New England and northern New York districts on kerosene where requirements have reached early winter proportions.

The advance of a half cent per gallon in tankcar fuel oil prices by Atlantic Refining Co. and other marketers in Philadelphia, other Pennsylvania points and Delaware two weeks ago appears to be firmly established. Standard Oil Co. of New Jersey subsequently advanced No. 2 and No. 4 fuel oil prices a quarter cent per gallon in parts of New Jersey.

PRICES OF REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of October 19, 1937

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below (3d gr.)	.04¾	.05
63-66 octane	.05¼	.05⅜
67-69 octane	.05½	.05⅝
70-72 octane (regular)		.05⅞
60-62 400 grades:		
62 oct. and below (3d gr.)	.04¾	.05
63-66 octane	.05¼	.05⅜
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)		.05⅞
64-66 375	.05	.05¼
68-70 360	.05⅛	.05⅜

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04¾	.05
63-66 octane	.05¼	.05⅜
67-69 octane	.05½	.05⅝
70-72 octane (regular)		.05⅞
60-62 400	.04¾	.05
64-66 375	.05	.05¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below	.05¼	.05⅜
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05¾
70-72 octane (regular)	.05	.06

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below	.05¼	.05⅜
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05¾
70-72 octane (regular)	.05⅞	.06

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04¾	.05
63-66 octane	.05¼	.05½
67-69 octane	.05½	.05⅝
70-72 octane (regular)	.05⅞	.06
60-62 400 grades:		
62 octane and below	.04¾	.05
63-66 octane	.05¼	.05½
67-69 octane	.05½	.05⅝
70-72 octane (regular)	.05⅞	.06
64-66 375	.06⅛	.06¼
68-70 360	.06¼	.06⅜

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.07½	.08½
58-60 400, 65 oct. and higher	.08¼	.09¼

EAST COAST (Domestic)—

U. S. Motor below 60 octane:		
*New York (Bayonne)	.06¼	.06½
Baltimore	.06	.06¼
U. S. Motor, 60-64.9 octane:		
*New York (Bayonne)	.07¼	.07¾
Philadelphia	.07¼	.07½
Boston	.07¾	.08¼
Baltimore	.07¼	.07½
Charleston, S. C.	.07¼	.07¾
U. S. Motor, 65 and above:		
*New York (Bayonne)	.07½	.08
Philadelphia	.07¼	.07¾
Boston	.07¾	.08¼
Baltimore	.07½	.08
Charleston, S. C.	.07¾	.08¼

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:	
Below 60 octane	.06⅛
60-64.9	.06¼
65 octane and higher	.06¼

Naphtha

PENNSYLVANIA (inland refineries)—

50-52 450 (blending)	.05½	.05⅝
52-54 450 (blending)	.05½	.05⅝
54-56 450 (blending)	.05⅝	.05¾

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.04½
Grade 18-55	.05⅝	.05½

NORTH TEXAS—

Grade 26-70		.04⅜
Grade 18-55	.05¼	.05⅝

CALIFORNIA—

75-85 375-390	.06¾	.07½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.04⅝	.04¾

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110 flash, 540-550 e.p.	.04⅛	.04¼
41-43 gr., 300-350 l.b.p., 110-125 flash, 500-520 e.p.	.04¼	.04½
46-48 gr., 210-230 l.b.p., 480 max. e.p.	.04¾	.04⅞

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04⅛	.04¼
42-44	.04¼	.04½

NORTH TEXAS—

41-43	.04⅛	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43	.04½

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04¾

PENNSYLVANIA (inland refineries)—

45	.05⅜	.05½
46	.05½	.05⅝
47	.05⅝	.05¾

CHICAGO (Based on Group 3)—

41-43	.04	.04⅛
42-44	.04¼	.04½

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.06

NEW YORK (Bayonne, N. J.)—

41-43	.06 3/10

***GULF COAST (domestic)—**

41-43	.05¼

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.04	.04⅛
No. 1 straw, 38-40	.03¾	.03⅞
No. 2 straw, 32-36		.03¾
No. 2 dark, 32-36	.03⅜	.03⅝
No. 3 zero to 15, 28-32	.03¼	.03½
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42		.04
No. 1 straw, 38-40	.03¾	.03⅞

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36	.03¾

CHICAGO (Based on Group 3)—

No. 1 prime white, 38-40	.04	.04⅛
No. 1 straw, 38-40	.03¾	.03⅞
No. 2 straw, 32-36	.03⅝	.03¾
No. 2 dark, 32-36	.03⅜	.03½
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02¾	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.06 3/10
*No. 2	.05½
*No. 4	.05¼

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.03	.03¼
No. 4, low cold test, 24-28	1.07½	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.85	.90
Below 18 fuel oil, industrial	.75	.82½

NORTH TEXAS—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.07½	1.12½
No. 5, low cold test, 18-22	.82½	.87½
Below 18 fuel oil, industrial	.75	.82½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (based on Group 3)—

U.G.I. gas oil	.03	.03¼
No. 4, low cold test, 24-28	1.07½	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.85	.90
No. 6, low cold test, 10-16	.80	.85

PENNSYLVANIA (inland refineries)—

36-40	.04⅝	.04⅞

CALIFORNIA—

Los Angeles:		
30-34 gas oil, per bbl.	1.40	1.50
24 plus diesel, per bbl.	1.35	1.45
24 plus diesel (bunkers)	1.60	1.65
12-16 (bunkers at tidewater)	1.05	1.10
10-16 (cargo lots)	.90	1.10
12-17 (tankcars)	.95	1.15
10-17 (high sulfur)	.65	.95
San Joaquin Valley:		
10-18 (tankcars)	.75	1.00
24 plus diesel, per bbl.	1.40	1.50
24 plus diesel (bunkers)	1.60	1.65
10-16 (bunkers)	1.10	1.15

GULF COAST—

28-30 gas oil	.04¼	.04⅜
28-30 diesel (bunkers)		1.90
Bunkers (bulk cargoes)	.80	.90
Bunker C (bunkers)		1.05

NEW YORK (Bayonne N. J.)—

27 plus, gas oil	.04¾	.04⅞
28-30 diesel (lighterage 6¼c per bbl.)		2.20
28-30 diesel (tankcars)		.05
Bunker C (to ocean-going ships in N. Y. harbor)		1.35
Industrial fuel (tankcars)	.04½	.04¾

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:		
190-200 D, 15-25		.20
150-160 D, 0-10		.17
150-160 D, 15-25		.16
150-160 E, 15-25		.15½
100-110 D, 0-10		.15½
Steam refined:		
631 green (treated)		.15½
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.19	.20
15 pour test	.18	.19
20 pour test	.17	.18
25 pour test	.16	.17
Steam refined:		
600	.09	.09¼
650	.13½	.14
600 Pennsylvania flash	.14	.14½
630 flash	.18	.18½
600 Warren E filtered	.15½	.16

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:	
150-3	.09
180-3	.10
180-4	.09½
200-3	.10½
200-4	.10
250-3	.11½
250-4	.11
280-3	.12½
280-4	.12
300-3½	.13
400-3½	.14
100-2½ paraffin oil	.06
15-20 Cold Test:	
200-3	.10
200-4	.09½
250-3	.11
250-4	.10½
280-3	.12
280-4	.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11¼
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F. color, 400-405 flash:		
Zero pour test	.22½	.23
10 pour test	.21½	.22
15 pour test	.21	.21½
25 pour test	.20	.20½
180 vis. at 70° F., 3 color:		
25 pour test	.23	.23½
200 vis. at 70° F., 3 color:		
Zero pour test	.27	.27½
10 pour test	.26	.26½
15 pour test	.25½	.26
25 pour test	.24½	.25

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.03

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0295	.0300
124-126 (a.m.p.) w.c. scale	.0295	.0300

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0445
125-127 (a.m.p.) wax		.0455
128-130 (a.m.p.) wax		.0480
130-132 (a.m.p.) wax		.0505
133-135 (a.m.p.) wax		.0535
135-137 (a.m.p.) wax		.0560
124-126 (a.m.p.) w.s.	.0295	.0300
124-126 (a.m.p.) y.s.	.0265	.0280
Petrolatum in barrels, carload lots:		
Dark green		.01⅞
Amber	.02⅞	.03
Extra amber	.03	.03⅛
Lily white	.06⅝	.06¾
Snow white	.07¾	.07⅞
Cream	.05⅝	.05¾

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.06⅛
60-62 400		.06¼
61-63 390	.06⅛	.06¼
64-66 375		.06⅜

LOS ANGELES—

U. S. Motor grades:	
55-65 octane	.06
65-69 octane	.06¼
Above 69 octane	.06½

KEROSENE

GULF COAST—

41-43 prime white	.04⅞
41-43 water white	.05⅛
44 water white	.05⅜

LOS ANGELES—

41-43 water white	.04½	.05

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.22½	.24½
600 S.R. unfiltered	.20½	.21
630 S.R. unfiltered	.23½	.24
600 flash, S.R.	.24	.24½
630 flash, S.R.	.28½	.29
Bright Stocks:		
8 color	.32	.32½
6½ plus color in dilution	.31½	.32

NEUTRAL OIL

200-3 color	.31	.31½
150-3 color	.27	.27½

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.04125
125-127 a.m.p.		.0425
128-130 a.m.p.		.0450
133-135 a.m.p.		.0525
135-137 a.m.p.		.0550
Crude scale:		
124-126 w.s.	.0295	.0300
124-126 y.s.	.0265	.0280

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

(January 28, 1937)

East Texas (May 22, 1937)*	$1 35
Van, Tex.†	1.10
Camp Hill, Tex.	1 27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1 20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

West Texas

See gravity table.

Pecos County*	.91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co., and Humble Oil & Refining Co. †Shell Petroleum Corp.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1 12
Greybull, Wyo.*	1 30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light*†	1.30
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo. (Nov. 4, 1936)*	.57
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light	.82
Hogback, N. Mex.*	1 33
Pondera, Mont. (Jan. 26, 1936)*	1.05
Salt Creek Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†	1 23
Rock Creek, Wyo.†	1 20½
Lea County, N. M. (see West Texas gravity table)	
Artesia, N. Mex.	.90
Maljamar, N. Mex.	.90
Canon City and Florence, Colo.	1 10
Florence, Colo.	.98
Lance Creek, Wyo.	.97
Sunburst, Mont. (June 5, 1936)	1.20
Cat Creek, Mont.	1.40
Cut Bank, Mont.	1.35

*Standard Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Cut Bank by Toronto Pipe Line Co.

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	$1.25
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (July 23, 1937)*	1.27
West Branch, Mich. (July 22, 1937)	1 09
Buckeye (July 23, 1937)	1.24½
Arenac, Mich (July 1, 1937)	1.21
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co.

Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

Gulf Coast

(January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1 00
Garden Island, La.	1 37
Cleveland, Tex.	1 27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 4, 1937)	1.12

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Southwest Texas

(January 28, 1937)

Pettus	1.37
Salt Flat, Darst Creek, Hilbig, Carroll Clark, Zoboroski	1 09
Luling	1.00
Lytton Springs	1.12

Saxet and Taft take same gravity table as Gulf Coast.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1 02
El Dorado East field	90
Union County, Ark.	90
Ouachita County, Ark.	90

Eastern States

(Prices are 25 cents per bbl. below those posted on September 1)

TIDEWATER PIPE LINE CO.
(Effective October 12, 1937)

Bradford, Pa.	$2.35
Allegany, N. Y.	2.35

SOUTH PENN OIL CO.
(Effective October 12, 1937)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.35
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.05
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.00
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.85
Corning Grade Oil in Buckeye Pipe Line Co.'s lines	1.27

PENNZOIL CO.
(Effective October 12, 1937)

Pennsylvania Grade Oil in National Transit Lines:	
Group A — Includes Cochran, Franklin, Hamilton and Doolittle districts.	2.35
Group B — Includes Tidioute district.	2.34
Group C — Includes Turkey and Tidioute districts.	2.30
Group D — Includes Bear Creek and Porkey districts.	2.29
Group E — Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	2.26

PURE OIL CO.
(Effective October 12, 1937)

Cabin Creek, W. Va.	2.00
Bradford Hollow, W. Va.	2.00
Kelly Creek, W. Va.	2.00

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17
Turner Valley, Alberta province (Dec. 16, 1936):†	
Clear naphtha	$2.60
Discolored naphtha, 65 gravity and higher	2.36
Discolored naphtha and crude oil, 40-40.9 gravity	1.55
Increasing 3 cents for each degree of gravity with top price for 64-64.9 gravity	2.27

These prices delivered field tankage.
*Imperial Oil, Ltd.
†Imperial Oil, Ltd., and Regal Oil & Refining Co. On crude oil alone British American Oil Co. posted above prices on December 9, 1936.

Mexico

Panuco*	$1.34

*In U. S. currency, f.o.b. ship, based on August spot market transactions.

New California Postings

Effective October 15 Standard Oil Co. of California posted prices in Wilmington and El Segundo fields in California as follows:

Gravity—	Wilmington	El Segundo
14-14.9	$ 75	$ 80
15-15.9	.75	.80
16-16.9	.75	.80
17-17.9	.77	.80
18-18.9	.79	.80
19-19.9	.82	.82
20-20.9	.85	.85
21-21.9	.88	.88
22-22.9	.92	.92
23-23.9	.95	.95
24-24.9	.99	.99
25-25.9	1 03	1 03
26-26.9	1 06	1 06
27-27.9	1 10	1 10
28-28.9	1 14	1.14
29-29.9	1 17	1.17
30 and over	1 21	1.21

Rocky Mountain Runs

Daily average production estimates for week ended October 16:

WYOMING	
Salt Creek	16,420
Big Muddy	1,370
Dallas Derby	570
Elk Basin	690
Frannie	2,020
Garland	2,710
Grass Creek	3,130
LaBarge	1,020
Lance Creek	12,190
Lost Soldier	1,190
Medicine Bow	5,310
Oregon Basin	7,840
Osage	720
Quealy Dome	810
Rock River	2,270
South Casper	510
Other fields	2,730
Total Wyoming	61,500
MONTANA	
Border	150
Cat Creek	570
Cut Bank	10,330
Dry Creek	250
Kevin-Sunburst	5,160
Pondera	1,210
Total Montana	17,670
COLORADO	
Florence	120
Fort Collins & Wellington	260
Iles Dome	2,790
Moffat	410
Orchard	40
Rangely	80
Tow Creek	140
Price	530
Total Colorado	4,370
NEW MEXICO	
Cooper	5,540
Eaves	1,030
Eunice	27,820
Hardy	1,380
Hobbs	16,750
Jal	1,110
Langlie	2,180
Lynch	690
Lynn	300
Mattix	1,900
Monument	29,700
North Lynch	60
Penrose	3,670
Rhoades	120
Skelly	1,570
South Eunice	2,040
Vacuum	80
Artesia	6,820
Getty	200
Hogback	200
Rattlesnake	780
Table Mesa	90
Total New Mexico	104,030
Total Rocky Mountain Region	187,570

Crude Prices by Gravities

	1 Oklahoma-Kansas	2 Oklahoma-Kansas	3 North and Central Texas	4 East Central Texas (Mexia district)	5 North Louisiana-Arkansas	6 Gray County, Texas	7 Hutchinson-Carson counties, Texas	8 Rodessa, Louisiana-Texas and Panola County, Texas	9 Conroe, Tomball, Raccoon Bend, Deep, Saturna	10 Gulf Coast	11 Gulf Coast	12 Lea County, N. Mex. West Texas except Pecos County,	13 Mirando district, Texas	14 Marion County, Texas	15 Refugio, Greta, Saxet, Taft, Texas	16 Anahuac, Flour Bluff, Dickson, Turtle Bay	17 White Castle, Louisiana	18 Iowa, Louisiana	19 Cayuga, Texas
Bel. 18	....	....	....	....	....	....	....	....	....	$.90	....	....	....	....	....	....	....	$.90	....
18-18.9	....	....	....	....	....	....	....	....	....	.92	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	.94	....	....	....	....	....	....	$.94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	.96	$.95	....	$.96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1.01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1.04	1.04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1.07	....
Bel. 25	....	$.98	....	....	$.90	....	....	$.93	....	....	....	....	....	$.90	....	....	....	....	$.88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$.78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel. 29	$1.06	....	$.96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$.96	$.91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Dickey, Eason, El Dorado, Empire, Falcon, Globe, Gulf, Johnson, Kanotex, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.

Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.

Column 3—All purchasers.

Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.

Columns 5, 6, 7 and 8—All purchasers.

Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)

Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)

Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.

Column 12—All purchasers.

Column 13—All purchasers (effective July 6, 1937).

Column 14—Magnolia Petroleum Co.

Column 15—Humble Oil & Refining Co. (effective July 6, 1937).

Column 16—Humble Oil & Refining Co. prices start at 30-30.9 gravity at $1.16 adding 2 cents for each degree upward to and including 40 and over at $1.36.

Columns 17 and 18—Shell Petroleum Corp.

Column 19—Tide Water Oil Co.

MARKET RECORD, ACTIVE OIL STOCKS

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1937 High	1937 Low	Week ending Oct. 16 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
114⅞	67½	5,700	75	68	70	Amerada Corp.	788,675	N.P.	50cQ	10-30-37	$2.00	125½	75	80	48½
37	20⅛	19,500	22⅛	20⅛	20¼	Atlantic Refining	2,664,000	$25	25cQ	9-15-37	1.25	35⅛	26⅝	28	20½
43⅜	15¼	9,800	18	14⅞	15	Barber Co.	387,149	$10	25c.	6-1-37	.50	38½	21	22½	11⅜
35¼	14	28,800	16⅛	14	14⅜	Barnsdall Oil Co.	2,247,974	$5	25cQ	11-1-37	.80	28¼	14⅛	14¾	5⅞
20⅞	8	61,600	9¼	8	8	Columbia Gas & Elec.	11,610,036	N.P.	20c	5-15-37	.40	23⅜	14	15¾	3⅜
17⅞	9⅝	69,000	11⅛	9⅝	9⅝	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	11-15-37	.80	17¼	11½	12¼	6½
49	30¾	46,300	35½	30¾	31⅝	Continental Oil of Delaware	4,682,615	$5	50cQ†	9-30-37	1.50	44⅞	28⅛	35	15⅛
17⅝	7	27,500	9¼	7	7⅜	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	13⅞	6⅜	7	1½
35⅜	18¼	21,900	21¾	18¼	18½	Mid-Continent Petroleum	1,855,912	$10	50cSA	6-15-37	1.15	30⅞	17¼	20½	9½
34	16⅝	4,300	18	16⅝	17	Mission Corporation	1,399,345	N.P.	1.00	6-15-37	.45	29⅞	16⅜	17⅜	10⅝
41⅜	24	15,800	28½	24¼	24½	National Supply of Delaware	382.591	$25	.	5-15-31	....	75½	19⅞	20⅞	9
22⅞	12	34,000	13⅞	12	12¼	Ohio Oil Co.	6,563,377	N.P.	50cSA	6-15-37	.60	18	12⅛	14¼	9¼
29¾	14¼	3,300	15⅞	14¼	14¼	Pacific Western Oil	1,000,000	N.P.	65c	12-18-36	.65	23½	11¾	14	6¾
4½	1¼	2,800	1½	1¼	1¼	Panhandle P. & R.	198,770	N.P.	....	....	....	4¼	1⅝	1⅞	½
61	38⅜	32,800	46	38⅜	38⅜	Phillips Petroleum	4,449,052	N.P.	75cQ†	9-1-37	2.50	52⅝	38⅛	40	13¾
29⅞	17½	9,400	20¼	17¼	18	Plymouth Oil Co.	1,050,000	$5	35cQ	9-30-37	.90	27¾	11⅞	13	6½
24⅜	11	69,600	14¼	11	12⅛	Pure Oil Co.	3,281,120	N.P.	....	9-1-30	....	24⅞	16	17	5⅞
54⅛	23	5,100	26	23	23	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	9-15-37	1.00	44	30½	36⅞	20⅝
34⅜	15⅝	13,300	19	15⅝	17⅛	Shell Union Oil	13,070,625	N.P.	50c	7-15-37	.25	28¼	14⅜	16½	5½
105⅜	99	400	99⅛	99	99	Shell Union Oil 5½% pfd.	343,500	$100	$1.37½Q	10-1-37	28.87½	127½	102	111	63⅛
4¼	9	2,600	3½	3¼	3½	Simms Petroleum	461,698	$10	75c liq.	11-3-37	2.25 liq.	6¾	3½	18⅝	4¾
60⅝	30¼	4,900	34½	30¾	31½	Skelly Oil	1,006,348	$15	50c	9-30-37	....	47⅜	19½	20½	6½
23¼	15½	87,900	17	15½	15⅝	Socony-Vacuum	31,151,071	$15	25cSA	9-15-37	.70	17½	12½	15¾	10⅝
50	32¼	18,300	34⅜	32¼	32¾	Standard Oil of California	13,014,754	N.P.	45cQ†	9-15-37	1.20	47⅝	35	41⅛	27¾
50	35	18,700	38	35	35	Standard Oil (Indiana)	15,196,241	$25	50cQ†	9-15-37	2.40	48½	32¾	33⅜	23
36½	30⅝	No sales	..	..	..	Standard Oil of Kansas	134,841	$10	$1	12-26-36	1.00	31	25	32	20
76	49¾	37,800	53¼	49¾	50½	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	6-15-37	2.00	70⅜	51⅛	52⅝	35¾
77½	58	500	59	58	58	Sun Oil	2,156,825	N.P.	25cQ	9-15-37	$1 & 6% Sk.	91	70	77	60½
65⅛	41½	57,500	46¾	41½	42	Texas Corp.	10,896,858	$25	50cQ	10-1-37	1.50	55¼	28⅞	30¼	16½
9⅝	3½	16,800	4⅜	3½	3½	Texas Gulf Producing Co.	888,132	N.P.	5c	12-15-36	.05	8⅞	4⅜	4¾	2½
16⅝	7¾	19,300	10⅜	7⅞	8	Texas Pacific Coal & Oil	888,237	$10	10c	9-1-37	.25	15¼	7½	9¼	3¼
21⅝	14¼	13,600	15⅝	14¼	14⅜	Tide Water Associated	6,288,512	N.P.	35cQ†	9-1-37	.70	21¾	14¾	15⅞	7⅝
28¼	20	15,200	21¼	20⅛	20½	Union Oil of California	4,386,070	$25	55cQ†	11-10-37	1.00	28½	20¾	24	14¾
31½	23½	2,200	23¾	23½	23½	Union Tank Car Co.	1,200,000	N.P.	40cQ	9-1-37	1.20	31⅝	22⅝	26½	20⅞
6¼	2⅜	3,800	3	2⅜	2½	Wilcox Oil & Gas	424,839	$5	....	5-10-28	...	5¼	2¾	3⅛	1

*Ex-dividend. †Includes extras.

New York Curb Exchange

1937 High	1937 Low	Week ending Oct. 16 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
21⅜	11⅛	2,500	13⅛	11⅛	11⅝	Bridgeport Machine Co.	260,000	N.P.	25c	9-30-37	$1.00	21	13¼	14⅛	3¾
51½	44	500	45¾	44	44	Buckeye Pipe Line Co.	200,000	$50	$1Q	9-15-37	3.25	50	39¾	42½	30½
2¾	1	14,400	1¾	1	1⅛	Carib Syndicate	799,020	25c	...	.....	....	4⅞	1⅞	4¼	1⅝
123	98	150	100	99	100	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-30-37	7.00	124¾	105	157	115
5⅜	1⅝	102,100	2⅛	1⅝	1¾	Cities Service	37,804,394	N.P.	....	6-1-32	....	7⅜	3	3¼	⅝
5½	2¼	10,300	3	2¼	2½	Cosden Petroleum	399,687	$1	....	.....	....	4½	1½	1½	¼
38¾	22	10,900	24½	22	23	Creole Petroleum	6,974,356	$5	50cSA†	6-10-37	.50	39	19⅞	23¾	10
18⅝	8¼	2,400	9⅛	8¼	8⅞	Darby Petroleum	351,390	$5	25cSA	1-15-38	.50	18⅛	9	8⅞	4
8⅝	2⅝	4,000	4½	2¾	3⅛	Derby Oil & Refining	263.162	N.P.			....	6¾	1⅞	2	⅝
47½	29	No sales	..	..	..	Eureka Pipe Line	50,000	$50	$1Q	11-1-37	4.00	47½	38½	38	33¼
63½	41½	13,100	44¼	41⅝	43⅞	Gulf Oil Corp.	9,076,202	$25	25cQ	10-1-37	1.50, 100% Stk.	59	36	74¾	50¼
87	64½	4,500	67	64½	65½	Humble Oil & Refining	8,923,935	N.P.	62½cQ	10-1-37	1.50	80	57	64	44
24¼	16⅝	8,900	19	16⅝	16⅞	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	6-1-37	1.25	24½	19¾	22½	15⅝
15	7⅜	500	9	8⅜	8⅜	Indiana Pipe Line	300,000	$10	50cSA	11-15-37	.80	9¾	5½	6⅛	3⅝
39½	28⅜	14,400	31⅜	28⅝	28⅞	International Petroleum	14,247,088	N.P.	$1.25†‡	6-1-37	2.50	39⅝	32⅝	39¾	28
15¼	8⅛	10,900	9	8⅛	8¼	Louisiana Land & Exp.	3,000,000	N.P.	10cQ	9-15-37	.50	15⅝	9⅞	11⅝	4⅜
34	16⅛	8,100	24⅞	21⅜	21⅝	Lion Oil Refining	270,000	N.P.	25cQ	10-20-37	.75	17⅝	7⅝	8⅛	3½
14¼	7½	7,300	8½	7½	7¾	Lone Star Gas	5,382,723	N.P.	20c	8-21-37	.60	14¼	9⅞	10⅞	4½
14⅝	7⅛	1,700	7⅞	7⅛	7⅛	Midwest Oil Co.	998,444	$10	50c	6-15-37	....	..	..	..	..
7⅞	5	5,000	5¼	5	5⅛	Mountain Producers	1,682,182	$10	30cSA	6-15-37	.60	8⅜	5	5¾	4⅛
19½	13	4,300	14	13	13	National Fuel Gas	3,810,183	N.P.	25cQ	10-15-37	1.00	23	17⅝	20	11⅝
12½	8	1,300	8½	8	8⅛	National Transit	509,000	$12.50	45cSA	6-15-37	.75	15¾	9¼	10⅝	6⅝
6⅛	4¼	100	4½	4½	4½	New Bradford Oil	1,445,202	$5	18c	9-17-37	.10	4⅝	2⅞	3¼	2
5	1½	1,100	1½	1½	1½	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	.01	6⅝	1⅝	2½	1
5⅜	4⅛	100	4½	4½	4½	New York Transit	100,000	$5	25cSA	10-15-37	.35	6¼	4¼	4⅞	3
12⅜	7½	No sales	..	..	..	Northern Pipe Line	120,000	$10	40c	6-1-37	.40	9¾	4⅞	8	5¼
9⅝	4⅛	40,900	5⅝	4⅛	4⅛	Pantepec Oil	1,608,700	N.P.	.		....	10⅛	3¼	4⅝	1¼
13¾	2	5,400	4⅛	2	3	Root Petroleum Co.	336,045	$1	25c	2-1-37	.50	19¼	4½	5	1½
6½	2⅝	3,700	3¼	2⅝	3	Ryan Consolidated	296,931	N.P.	....	....	....	4⅝	1⅞	2½	⅝
56	37	2,400	43	37	37¾	South Penn Oil	1,000,000	$25	$1.15Q†	9-30-37	2.60	44	32½	34½	21⅝
7¼	4⅞	100	4¼	4¼	4¼	Southern Pipe Line	100,000	$10	25cSA	9-1-37	.25	7⅞	3¼	5	3⅞
42	24½	50	24½	24½	24½	South West Penna. Pipe Lines	35,000	$50	50cQ	10-1-37	13.00	60	44	56	44¼
21⅛	17⅝	2,800	18⅛	17½	17⅝	Standard Oil of Kentucky	2,604,790	$10	40cQ†	9-15-37	1.35	23¾	17½	24	18
13¾	8⅛	600	8½	8½	8½	Standard Oil of Nebraska	188,403	$25	25c	3-29-37	.25	14⅝	11	12	7⅝
45	23	2,300	27½	23	23¾	Standard Oil of Ohio	753,740	$25	25cQ	9-15-37	2.00	40	21¾	23⅝	11½
4⅞	2¾	14,400	3⅛	2¾	2¾	Sunray Oil	1,910,119	$1	10c	8-20-37	.10	5	2⅝	2⅞	⅞
7⅝	4¼	1,700	4½	4¼	4¼	Texon Oil & Land	336,028	$2	15cQ	9-3-37	.60	9¾	5⅝	6⅞	5

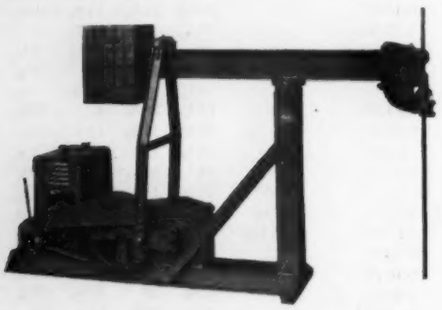
*Ex-dividend. †Includes extras. ‡Payable in Canadian funds.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

NEW OR IMPROVED EQUIPMENT

Unit for Pumping Single Wells in Shallow Fields Offered

A new unit for single-well shallow-field pumping is being marketed by the National Supply Co. of Toledo, Ohio. This unit, designated as the TU7OG-JD7T, is of the self-contained twin-crank



design, generally used for heavier pumping duty.

A sufficiently high reduction-gear ratio is used to utilize low-cost high-speed prime movers. At the same time further variation in the V-belt drive allows the adaptation of slow- and medium-speed types if desired. The cranks clear the derrick floor so that no special foundations are needed and the unit therefore can be economically installed or moved at any time.

All welded construction is used throughout and the unit is compact and rigid. The reduction gear is rated at 3.6 nominal horsepower at 20 r.p.m. with a reduction ratio of 24.9. The gears are all alloy, heat-treated, single helical, assuring quietness and efficiency. They run in an oiltight case. All reduction-gear shafts are carried in Timken bearings.

A link-type polished-rod hanger that closely approaches straight lift at maximum stroke is regular equipment, with arc-type wire-line hanger optional. Well servicing is made convenient by a removable beam-hanger head. Saddle, beam and wristpin bearings are of the enclosed oilbath, dust- and oiltight type. Maximum stroke available is 24 inches. Counterweights are of the beam type added in five increments to give maximum counterweight effect, at maximum stroke, of 1,753 pounds. The weight of the complete unit, less the counterweights, is 1,310 pounds. A bulletin giving complete description is available upon request.

Here and There With Men Who Manufacture Equipment

A. T. Donley, formerly with Allegheny Steel Co., has joined the sales organization of the A. M. Byers Co., Pittsburgh, Pa. Mr. Donley will be in charge of steel tubular sales in the petroleum industry, with headquarters at 1270 Arcade Building, St. Louis, Mo.

M. F. May, connected with the Young Radiator Co., Racine, Wis., since 1930, has been appointed vice president. He will continue to serve as sales manager of the catalog products division, which has sales and engineering offices throughout the United States and Canada.

Neal Higgins has been placed in charge of all industrial tractor and power unit sales of the International Harvester Co., succeeding R. C. Flodin, who will coordinate the work of the engineering, manufacturing, and sales departments in the industrial and agricultural power lines, a new post. Mr. Higgins has been closely identified with the sale of the company's industrial power lines for the past five years.

The Duraloy Co., Scottdale, Pa., has appointed W. C. Schade, St. Louis, Mo., to represent it in the Mid-Continent territory.

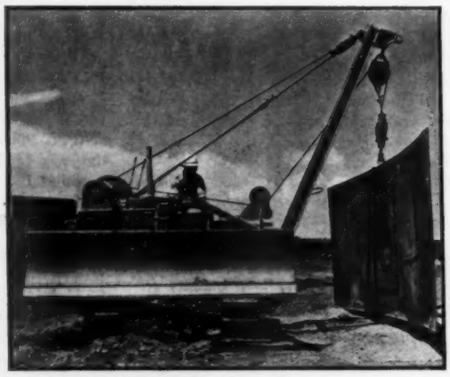
The 1937 sales promotional campaign of the Wailes Dove-Hermiston Corp. of New York has received an award from the Direct Mail Advertising Association as one of the best 50 such campaigns in the country. Awards are made on the basis of plan, design, copy and results. The Wailes Dove-Hermiston campaign was planned and directed by Julio F. Sorzano, manager of the industrial division.

Max H. Schachner has been made assistant sales manager of the Winton Engine Corp., subsidiary of General Motors. His principal responsibility will be direction of the sale of the new Winton two-cycle diesel engine to manufacturers and distributors.

The Kennedy Valve Manufacturing Co., Elmira, N. Y., has appointed Fred C. Greaves its representative in Oregon and Washington. Mr. Greaves' office is in the Polson Building, Seattle, Wash.

Extra Eye Available

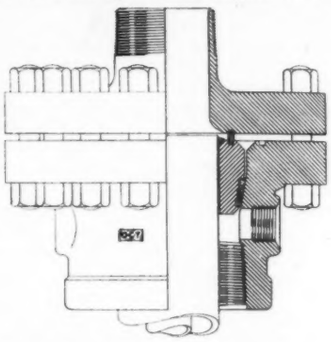
An extra eye is available to technicians in the Marks polarizer and analyzer, which enables one to detect defects (strains, etc.) and irregularities in transparent materials, such as glass, rubber and plastics. In the case of opaque materials thin sections are made. In this way ores, metals, alloys, ceramics are tested. It facilitates the identification and grading of crystals, dusts, food products, plant fibers, drugs, textiles, lacquers, living tissue, leather, lubricating greases, and other complex substances. This device slips into place on any microscope for instant use. The Laboratory Equipment Co., 148 Lafayette Street, New York, is the exclusive distributor for the industrial and laboratory fields.



Here is a "Caterpillar" Thirty, with Trackson sideboom and winch, moving tank sections for a new refinery of the Ohio Oil Co. at Lovell, Wyo. The machine is being worked eight hours a day on 1½ gallons of fuel per hour. The country is described as rough.

K-1 Casinghead for Suspending Welded Casing Announced

The O-C-T type K-1 casinghead shown here, introduced by the Oil Center Tool Co., Inc., Houston, Tex., is a full open head designed for running



welded casing through blowout-preventer equipment. The body flange is made to A.P.I. specifications, being provided with a standard A.P.I. ring joint to accommodate A.P.I. flanged blowout-preventer equipment. After cementing the casing, the blowout-preventer equipment is removed and a forged-steel casing-hanger slips over the casing and seats in the bowl of the body.

After taking the stretch in the casing string the casing is welded to the hanger which packs off on three rings of hydraulic packing. The casing then is cut off flush with the top of the hanger and a tubing-head adapter-flange bolts down on top of a ring joint provided on top of the hanger. The tubing-head adapter-flange is available with either threaded or flanged connection. Test pressures range from 4,000 to 10,000 pounds.

R. C. Harden Eastern Manager

Ralph C. Harden has been appointed by the Gustin-Bacon Manufacturing Co., Kansas City, Mo., general manager of its eastern division. Eastern headquarters will be in New York.

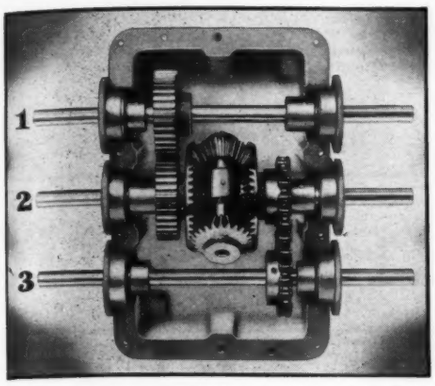
Mr. Harden's sales and executive experience has been well balanced. With Johns-Manville Sales Corp. for years, he was successively salesman, insulation and packing sales manager, division manager and regional vice president, with headquarters in Chicago. For the past three years he has served as general department sales manager with the United States Rubber Products, Inc., New York.

Ralph L. Wilson Joins Climax

Ralph L. Wilson, formerly metallurgical engineer of the Timken Steel & Tube Division of the Timken Roller Bearing Co., has joined the Climax Molybdenum Co. as metallurgical engineer in its development field. A graduate of Lehigh University, Mr. Wilson served on the metallurgical staff of the Central Alloy Steel Corp. and then joined the Timken Steel & Tube Co. His headquarters will be in the Canton, Ohio, office of the Climax Molybdenum Co. He will devote much of his time to development of steels for elevated temperature service in oil refineries and also for boilers.

Reeves Introduces Differential With Extended Range of Use

Supplementing its line of equipment for use with the Reeves variable-speed transmission, the



Reeves Pulley Co., Columbus, Ind., has developed a new differential. This unit, model MDB-3, is similar in principle to the differential in a motor car. It is used for a variety of requirements in automatic speed control, such as synchronization of two or more machines or parts of a single machine, and maintenance of uniform peripheral winding or unwinding speeds.

Within the unit housing are mounted three parallel shafts operating in a bath of oil. Gears of 1:1 (stock) ratio drive between shaft 1 and the differential gearing. Between shaft 3 and the differential gearing is 1:1 chain drive. (Special ratios also are available.)

For automatic control service shafts 1 and 3 are connected to the driven machine or machines. Shaft 2 is connected to the speed-changing screw of the Reeves transmission. When shafts 1 and 3 are driven in the same direction at the same speed, shaft 2 stands still. When the speed of the driven machine varies from the desired speed, this variation is transmitted to shaft 2, which speeds up or slows down the transmission until synchronous speed is restored.

The differential may be used also as primary driving equipment for loads not exceeding its rated torque and speed capacity. For example, it may be used with other equipment to control index or register, either manually or with photoelectric equipment.

Infinite range of speed variation is possible by connecting shafts 1 and 3 to the constant- and variable-speed shafts, respectively, of the transmission. By turning the speed-control hand-wheel on the transmission, shaft 2 may be adjusted to any speed in either direction. The unit is 8 inches wide, 11 inches long and 6⅝ inches high.

Bulletins, Booklets and Other Literature for the Trade

How Precision testing apparatus keeps abreast of developments in the petroleum industry is told in the latest number of Apparatus Topics, published by the Precision Scientific Co., 1730 North Springfield Avenue, Chicago.

A 28-page booklet dealing with the Cletrac AG streamlined tractor is announced by the Cleveland Tractor Co., Cleveland, Ohio.

The Chicago Pneumatic Tool Co., Chicago Pneumatic Building, New York, is sending on request an 8-page bulletin on diesel-engine-driven compressors, portable and stationary types.

A book of instructive pictures which tell the story of steel from iron-ore mine to finished products has just been published by the Youngstown Sheet & Tube Co., Youngstown, Ohio. Its 115 pages of basic steel information include 135 action photographs taken in the company's mines and mills. The book, "What We Make and How We Make It," may be obtained by officials, salesmen, engineers, and others interested by writing the sales promotion department of the company.

Describing its complete line of Synchro diaphragm control valves, a new bulletin has been completed by the Bristol Co., Waterbury, Conn.

Flexible Blue Knight finishes, engineered for specific performance, are the subject of a product summary prepared by the Roxalin Flexible Lacquer Co., Inc., Elizabeth, N. J.

Six new bulletins are ready for distribution by the Oil Well Supply Co.: Sucker-Rods, Polished Rods and Pullrods; No. 10 Pumping Unit; "Oilwell" Utility Pumping Jack; "Oilwell" No. 6-P Hoist; "Oilwell" No. 7-P Hoist; "Oilwell" No. 9-P Hoist.

Gilbarco Advances W. C. Leitch

W. C. Leitch, formerly district sales manager in Chicago for the Gilbarco sales organization, has been appointed assistant sales manager with headquarters at the factory in Springfield, Mass. For more than 17 years Mr. Leitch has been connected with the sales department of the Gilbert & Barker Manufacturing Co., as salesman, branch manager at the factory branch in St. Louis, Mo., and then district manager with headquarters in Chicago. In addition to this change W. M. Harks has been appointed sales engineer. Mr. Harks formerly managed the Gilbert & Barker factory branch in Kansas City, Mo. E. J. Walters of the Chicago sales staff succeeds Mr. Leitch.

Pipe Should Be Made of Sound Steel to Stand This Usage

The Jones & Laughlin Steel Corp., Pittsburgh, Pa., is supplying the pipe for the new line

being installed by the New York State Natural Gas Corp. from its gas wells in the Woodhull field, Steuben County, New York, to the main line running from Coudersport, Pa., to Syracuse, N. Y. More than 200 tons of J. & L. 12¾-inch O.D. double-length seamless line pipe, joined by Dresser couplings, is being installed, and the pipe line is designed to carry the gas at a working pressure of 500 pounds per square inch. This 12-mile spur line is the main outlet for gas produced in the Woodhull field.

Shown here is a joint of J. & L. seamless line pipe being bent to fit the contour of the ditch. The severe demands made on pipe today require that it be manufactured of strong, sound steel.

DRILLING-RIG GAUGE TROUBLES OVERCOME BY PANEL

Some of the common troubles with gauges on steam-boiler drilling-rigs are said to have been overcome in the panel-mounted gauge developed by the Marshalltown Manufacturing Co., Marshalltown, Iowa.

1. Frequent replacement has been necessitated by loss of accuracy resulting from proximity to the boiler, where the gauge is subjected to radiated heat and the heat of convection. Take the gauge off the boiler and away from the heat, and at once it escapes this evil.

2. Under ordinary conditions the gauges are in the open. Particles of rust get into the movement and dust settles inside the case, impairing operation. Bringing the gauge under a protecting roof removes these troubles.

3. Gauges installed without siphons are damaged by contact with live steam. If the gauge is mounted on a panel on the floor of the boiler-room, at a level below the top of the boiler, there always will be a water-leg in the piping, protecting the gauge—a positive seal against steam.

4. Gauges employed on boiler feed-pumps are subject to vibration and pulsation. Take them off the boiler and that nuisance ends.

5. In present practice a light and a reflector face each gauge in the boiler-room. If there are three boilers, there are three lights and three electrical connections. With the gauges grouped on a panel, as they are in the Marshalltown device, one light and one electrical connection are necessary.

If the rig is moved to a new location, the panel, the manufacturers say, is readily portable. The lid of the panel-box can be closed during the moving operation, affording protection to the instruments. This innovation in gauges is said to mark a distinct advance in operating efficiency.

Oil Man's Calendar

October

18-22—Atlantic City, N. J., American Welding Society, Eighteenth Annual Meeting and Welding Exposition.

26—Shreveport, La., Louisiana-Arkansas division, Mid-Continent Oil and Gas Association, membership meeting Slattery, Building.

27-28—Indianapolis, Ind., Indiana Independent Petroleum Association, Annual Fall Convention, Hotel Severin.

28—New York, S.A.E. Annual Dinner, Commodore Hotel.

29-30—Dallas, Tex., Mid-Continent Oil and Gas Association of Texas, annual meeting.

October—November

27-Nov. 3—New York, National Automobile Show, Grand Central Palace.

November

8-12—Chicago, American Petroleum Institute, Eighteenth Annual meeting, Stevens Hotel.

16—New York, Oil Trades Association of New York.

19—Tulsa, Mid-Continent Oil and Gas Association membership meeting, Tulsa Club.

December

6—Memphis, Tenn., National Asphalt Congress.

6-11—New York, Exposition of Chemical Industries, Grand Central Palace.

8-10—Flint, Mich., S.A.E. National Production Meeting.

14—Tulsa, annual meeting of directors of Mid-Continent Oil and Gas Association.

1938—March

16-8—New Orleans, twenty-third annual meeting, American Association of Petroleum Geologists, Roosevelt Hotel.

April

17-21—Dallas, Tex., American Chemical Society.

CLASSIFIED ADVERTISING

Leases and Drilling Blocks

NEW Texas Oil and Gas Leases. Large or small tracts for brokers and salesmen. State requirements. H. H. WHITE, P.O. Box 674, San Antonio, Texas.

SECURITY ABSTRACT COMPANY
El Dorado, Arkansas
Fee, Lease & Mineral Ownership
on short notice. Ownership maps.

ILLINOIS

A complete weekly report on Illinois operations.
One month.....$5.00
Six months.....$25.00
Sample report on request.

OIL NEWS SERVICE
P. O. Box 146 Flora, Illinois

ARKANSAS
Does not have any production (proration) restrictions. The opportunity for quick "payouts" is obvious. Come here and investigate royalty and lease opportunities
WILLIAM MONROE LAYTON
P. O. Box 411 Texarkana, Ark.

CAN FIND any oil structure that will produce when penetrated. P. O. Box 308 Tonkawa, Oklahoma.

HAVE 17,000-acre block that is believed over subsurface structure but will take geophysical survey to determine. Will make any reasonable deal with responsible party to develop. Address W. M. PRATHER, Oakley, Kansas.

New Mexico OIL LEASES WHOLESALE
40 acres at a time.
Roy G. Barton, Clovis, New Mexico.

TABER OIL FIELD

We own and control several thousand acres of leases in this new crude oil field.

We shall be interested in receiving proposals regarding the development of all or part of this area, from responsible operators or individuals.

Wire

PETROLEUM LEASES LIMITED
Stock Exchange Building
Vancouver, B. C.

FOR SALE or exchange—Producing and distributing natural gas properties in western Missouri and eastern Kansas. Fine condition. Great development possibilities. Exchange for producing oil wells acceptable. LOUIS C. CYR, 45 Melrose St., Lawrence, Massachusetts.

Specializing leases twenty acres up dollar acre, East Tex., La., S. Ark. Owners—Attorney, Box 1122, Little Rock, Arkansas

WEST TEXAS Permian and Delaware Basin oil leases at $1.00 and $2.50 per acre, also Jones, Fisher and Taylor county leases at low prices. MIESSE, P. O. Box 1152, Abilene, Texas.

WE ARE interested in drilling propositions on proven acreage. If you have any such acreage please submit to Box H-994, The Oil and Gas Journal, Tulsa, Okla.

Illinois Oil and Gas Leases
J. R. WINN, REAL ESTATE OFFICE
Mt. Vernon, Illinois.

Leases and Drilling Blocks

FOR SALE Oil producing leases with many locations yet to drill, leases for sale near production and wildcat leases for drilling contracts.
W. P. HARLEY
Bowling Green, Ky.

OWNER wishes to lease in Montana 320 A. E½ 29-35-13 Hill county and 160 A. NE¼, 24-33-4 Toole county, also 140 A. White county, Ill.
S. HOMAN
7205 Exchange Ave., Chicago.

WANTED—Production—any depth, any amounty—anywhere. Address Box J-102, The Oil and Gas Journal, Tulsa, Oklahoma.

LARGE drilling blocks, gas well, showings. Royalty, leases, sale, trade, Concordia, Tensas, Catahoula Parishes. JOHN DALE, Vidalia, Louisiana.

FRIO COUNTY—TEXAS
Oil and Gas Lease for Sale by Owner

5700 acres of land in Frio County, Texas, located near center of Amerada Block with Gas Well, making distillate and some oil, drilled near center of this block. Will lease all or part of this tract. Part cash, balance oil payment.
Write FRANK DOERING, Temple, Texas.

OFFER 1,020 acres around drilling well four miles south Harrisburg, Illinois $5.00 per acre bottom hole money. Offsetting well which drilled itself in and flowed, in 1928 rig burned. Rentals been paid ever since by promoter who now has rig on location. P. E. TICHENOR, 1440 Parrett St., Evansville, Indiana.

OWN 2,000 acres N. Pittsburg, Atoka Cos., Okla. 40 to 1,000 A. tracts, lease, royalty or land $5 to $25 per A. ½ cash, ½ oil. Townsite on 2 RRS. near production. J. E. CAVANAGH, Baker, Oregon.

Leases and Drilling Blocks

FOR SALE—Yoakum Co. Tex. lease on alleged seismograph high just ahead of production. Favorable drilling site 2 miles long consisting South half Sec. 596 and 597 for $20 per acre, bonus dollar delay rental.
DR. J. A. ROBINSON,
Veterans Adm., Los Angeles, Cal.

THREE PROVEN LOCATIONS to drill, 1900 feet, Branyon Field, Caldwell County, Texas. Allowable 75 bbls. per day. Will give one half interest for immediate development. Address Box J-105, The Oil and Gas Journal, Tulsa, Oklahoma.

1,000 ACRES GIVEN FREE for a Niagara test well, Southern Vigo Co., Ind. Other acreage. Jesse Allen Pimento, Ind.

FOR LEASE by owner W½, Sec. 20-17-19, SE¼, Sec. 30-17-19, Rush Co., Kans. Ten year lease rental at $1.00 per acre. S. Wollman, 808 Buffum, Wichita, Kans.

Royalties

Oil Royalties and Oil and Gas Leases
Bought and Sold
E. T. Marion
1109 Petroleum Building
Midland, Texas.

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

DEEDED—N.W. Oklahoma oil royalties and leases, near drilling wells or hot spots. I will make U $. Small commission. ENID OIL ROYALTY CO., Enid, Oklahoma.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

Oil Royalties and Leases Illinois Basin.
Write
Sam B. Raitman Olney, Ill
226½ Main St. P. O. Box 229

Royalties

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY

Paul Brown Bldg., St. Louis, Mo.

FOR SALE—Royalty under and around well SW¼, 26-27-22 Ford County, Kansas. Also blocks and leases. Geo. Rickard, Bucklin, Kansas.

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
214 Kennedy Bldg., Tulsa, Okla.

For Sale—Maps

SUCCESSFUL OIL OPERATORS
Are Using
ZINGERY OIL MAPS
Our Up-to-Date Lease and Fee Ownership Maps of Counties and Combination Development Maps Save Time and Money.
WRITE FOR DSCRIPTIVE FOLDER

1937 Revised Edition Map of State of Texas, eastern N. M., parts of southern Okla. SW Ark and La. shows Oil and Gas Fields in color, Counties and County seat and elevations, co-ordinated alphabetical index of fields and counties.
Price $1.00 postpaid
ZINGERY OIL MAP COMPANY
Fair Building Fort Worth, Texas

OIL MAPS
MAJOR CO. wildcat blocks, pools, etc. New Mexico 1937, colored 50c. BROOKS BROS. 350 Clay, Los Angeles.

Mailing Lists

ROYALTY INVESTORS, by deed. Speculators in low priced leases. Both by states. Oil Industry Mailing List Co., Tulsa Loan Building, Tulsa, Oklahoma.

Miscellaneous

FREE TO PIPE SMOKERS

Send for free copy of "PIPE & POUCH." America's first smoker's catalog-magazine, showing world's finest assortment pipes and tobaccos; also articles by Christopher Morley, John Erskine and other eminent authors. Write—
THE PIPE AND TOBACCO GUILD, LTD.
Dept. 53. 79 Madison Ave., New York

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Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma